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### An Unhappy Position

THE position of the British Transport Commission has never been enviable. At the present time when so much public criticism has been aroused as to its fares policy and there is a strong political clamour for change in the State transport organisation, the Commission is in a peculiar hiatus. In effect, it is the Commission's policy on fares which is being assailed in the House of Commons and elsewhere. Yet the Commission itself is without a spokesman and can do little either to explain or justify the course it has pursued. Theoretically, of course, the Minister of Transport should speak for the Commission in the House of Commons, but in present circumstances, when the fares policy of the Commission has been overthrown by the Government of which he is a member, and that same Government has expressed its dissatisfaction with the organisation under which British transport operates, he can hardly be regarded as a warm or practical defender of the child which was conceived by his predecessor. Equally obviously, it would not be practicable or particularly useful for any member on the other side of the House to be considered as spokesman for the Commission. This is an unfortunate but inevitable result of the relationship in which a State-controlled undertaking must stand in respect to the Government of the day. When the railways were under private enterprise it was recognised that certain Members of Parliament had special knowledge of railway policy which they could place at the disposal of the House. As we stated in our issue of

April 25, one of the great disadvantages in charging matters which has arisen since the Passenger Transport Act of 1947 has been the division between power and responsibility. The B.T.C. seeks authority for the rates and fares which it considers desirable, whereas the Railway Executive is responsible for the services which produce the revenue. The railways have long experience in the handling of matters of this kind and there can be little doubt that if they had been left with the responsibility for handling throughout the recent adjustments in fares a very great deal of the present upheaval would have been avoided.

### Mr. John Elliot on Railway Prospects

SELDOM do railwaymen in a District hear the head of their profession give them in person so much sound advice and encouragement as did the stationmasters of Cambridge District on Saturday last, when Mr. John Elliot, Chairman of the Railway Executive, was guest of honour at their annual luncheon. A short account is given on another page this week. In the present uncertainty as to the future of the railways, and with the railways the subject of many undeserved complaints, Mr. Elliot's counsel to railwaymen to concentrate on their jobs and maintain stout hearts, was timely. His reminders also were opportune, that satisfaction of the public is the criterion of railway service, that railways have, and for a long time to come must have a vital part to play in the normal peacetime economy of Britain, and that the process of improving the national railway system has hardly begun. His intimation of plans for further main-line electrification and dieselisation must arouse curiosity; but he was right to stress that study must be given before major projects can be started—apart from Government authority for the necessary capital expenditure and the availability of manpower and materials.

### Export of Railway Material

THE Trade & Navigation Accounts for March summarise as usual exports and imports during the first quarter. The various factors affecting fulfilment of export orders for locomotives, signal equipment, rails, and other railway material detract much from the value of comparison between years and allow of no deduction as to the availability of steel. It is significant, however, that for the first quarters of 1950-51-52 locomotive exports rose in quantity and in value (£1.7 to £2.7 million); exports of passenger vehicles rose in value (£0.8 to £1.1 million), though the quantity exported in the past quarter was slightly below that for January-March of 1951; and wagon exports fluctuated in value (£2.4 to £1.3 and £1.9 million) and in quantity, though the latter is no true indication of output. The returns show the importance of exports of track, signalling and other railway equipment, which rose in value from £1.8 million for the first three months of 1950 to £2.1 million for the first quarter of 1952. The figures show great variation in the volume and value of exports to the different countries, though no deduction can be made from these because of the interplay of factors governing shipment.

### International Freight Traffic and the I.C.C.

THE work of the International Chamber of Commerce in furthering the co-ordination of transport was briefly referred to in our issue of February 22. The I.C.C. Committee on Rail Transport, which met in Paris earlier this month, is interested, from the railway user's point of view, in the current process of revision of the C.I.M., the international convention governing freight transport by rail, and has concluded that the revised regulations framed by the various official bodies engaged on the revision meet most of the requirements of users communicated to railway managements by the I.C.C. The views of users have been taken into account notably as regards delivery periods, liability of the railways, and the

right of the consignee to modify the transport contract. The international status of privately owned wagons, which had been discussed at meetings organised by the I.C.C., also has been revised largely in accordance with owners' and users' suggestions. In addition, the International Union of Railways is considering a general "charter" for such wagons, combining the various regulations now in force; a special committee including I.C.C. representatives has been set up accordingly. The Chamber welcomes the news that the international status of containers is to be recognised in an annexe to the C.I.M. effective from January 1, 1953.

### Overseas Railway Traffics

**DURING** March the advance in operating expenses of the Canadian National Railways again exceeded the improvement in operating revenues, and as a result net revenue for the month fell by £58,000, to £1,646,000. Operating expenses were higher by £1,916,000 at £17,765,000, whereas the rise in operating revenues was £1,858,000 at £19,412,000. Net revenue for the current 13 weeks is now down by £760,000 at £1,702,000, though aggregate operating revenues, at £53,914,000, compare with £47,640,000 for the equivalent period of 1951. There was a £609,316 improvement to £1,908,931 in Victorian Railways receipts for December, 1951: £605,492 of this was contributed by railway services, traffics for which amounted to £1,899,023. An improvement in receipts for December partly resulted from the fact that between October 16 and December 9, 1950, there was a railway strike and services did not operate. Miscellaneous revenue for November, 1950, has been included in traffics for December of that year. Salvador traffics for February were c74,000 lower at c170,000, though aggregate receipts for the 35 weeks since July 1, 1951, are better by c55,000 at c1,382,000.

### Productivity Teams and Steel Production

**THE** report by a productivity team on the United States steel founding industry, the first of such reports by teams which examined basic industries in the U.S.A. under the auspices of the Anglo-American Council on Productivity, was published in 1949. A recent estimate by the British Steel Founders' Association gives the increase in production since 1949 in the steel founding industry as 15-20 per cent. The Council does not attribute this exclusively to the adoption of the team's recommendations, but claims that the findings played a major part in the increases and in other ways, and that the best proof of increased productivity is the trend in selling prices: the Board of Trade index for several industrial materials and manufactures rose in 1939-51 to 345 per cent. whereas that for steel castings rose to only 165 per cent. of the prewar figure. An example also is given of output increased per man-hour by 41 per cent. since 1949. The Council stresses the importance of the establishment by the B.S.F.A., in 1950, of its Research & Development Division, long planned but accelerated by the team's emphasis on the application of research.

### Co-operation in Technical Research

**THE** foundation of the Office de Recherches et d'Essais (O.R.E.) and the range of its activities were commented on in *The Railway Gazette* of May 25, 1951. Some account of those activities is given elsewhere in this issue. It shows the progress made in railway civil, electrical, and mechanical engineering research since the Board of Management of the International Union of Railways decided in November, 1949, to form an auxiliary organisation to pool, for the common benefit, the means and co-ordinate the results of technical research and trials conducted by member railway administrations. The President of the Netherlands Railways, Mr. F. Q. den Hollander, is Chairman of the Control Committee, and the O.R.E. is located in the Netherlands Railways head-quarter offices at Utrecht. Besides the staff of some seven-

teen member administrations whose services are called on from time to time to supply information or serve as *rapporteurs* or on panels of specialists, the O.R.E. has its own technical staff seconded from British and other railways. The remarkable degree of co-operation exemplified in the O.R.E. has been facilitated by the virtual absence today of competition between the railways concerned.

### A Peak Year for American Railways

**THE** American railways reached their greatest level of efficiency last year, according to the Association of American Railroads. Not only did they haul more freight per train than ever before but they also hauled it at the highest average speed yet attained. Class I railways moved an average of 21,767 net ton-miles per freight train-hour, the highest recorded, 50 per cent. above the 1941 total and three times that of the 1920 average. The average freight train speed, 17 m.p.h., was 3 per cent. more than the 1941 total and 65 per cent. more than that of 1920. The average number of freight wagons per train was 59.8, compared with 35.6 wagons in 1920 and 50.3 in 1941. Passenger train speeds on Class I lines were also a record. The average was 37.7 m.p.h., compared with 36.1 m.p.h. in 1941. These record figures are ascribed to the introduction of more powerful locomotives and improved freight wagons, and to improvements in signalling and operating.

### Mixed-Traffic Engines for Tasmania

**THE** firm of Robert Stephenson & Hawthorns Limited has recently completed ten locomotives for the Tasmanian Government Railways. These engines, which are described and illustrated elsewhere in this issue, are required for mixed-traffic operating, have an axleload of 10 tons, and are designed to negotiate a minimum curve of 330 ft. without widening of the rail gauge. A Belpaire boiler is fitted, with a steel inner firebox of all-welded construction; the first four rows of roof stays are flexible, and the water space stays are of Longstrand steel. A Hulson pattern firegrate is fitted, and a Vulcan balanced-type regulator is located in the dome. The engine frame is of plate-frame construction, the trailing end being arranged to suit a truck of the Hodges type. All wheels are of SCOA-P design in cast steel and Skefko roller bearings are fitted to all axles and also to the connecting and coupling rod main bearings. The engine brake is steam operated, and the tender and train vacuum operated; the gearing is fitted with Mintex bushes. The cylinders are bushed with cast-iron liners, lubrication being provided by means of an 8-feed Silver-town lubricator; Stone's electrical equipment is fitted.

### Electric Locomotives for Spain

**ON** Tuesday the first of sixty 3,000 V. d.c. broad gauge locomotives being built by the English Electric Co. Ltd., with mechanical parts for 40 by the Vulcan Foundry Limited, for the Spanish National Railways was inspected by representatives of the Spanish Government, Spanish and other overseas railways, the Railway Executive and the technical press at the Vulcan Foundry, Newton-le-Willows. With a one-hour rating of 3,600 h.p., the locomotives are the most powerful of their kind yet built in Great Britain. The first two are expected to be despatched about the end of this month, and will operate initially on the Uzo-Busdongo section. They have been designed to negotiate gradients of 1 in 40 and curves of 250 m. radius in normal running. Later they will be employed between Torre and Branuelas, where coal from the Ponferrada district has to be worked over a mountain section in which at one point the line describes a complete loop to ease the gradient. In many respects the new locomotives are similar to those of English Electric-Vulcan design already operating successfully on the former San Paulo Railway. They incorporate some interesting developments, and on Tuesday, as reported elsewhere, both the builders and their Spanish guests expressed confidence that this contract worth more than £4 million will consolidate the friendly relations between Spain and Great Britain.

### Fares Debate

THE debate in the House of Commons last Monday, summarised elsewhere in this issue, could not be expected to contribute to the solution of the passenger fares problem or to that of the wider problem of the future of nationalised transport. Government intentions as to the latter will not be made known until publication of the forthcoming White Paper. The Government motion approving the suspension by the Minister of Transport of the introduction from May 1 of higher railway fares outside the London Area and advocating reconsideration of the "disproportionate increases" in London Area fares from March 2, was moved by Sir David Maxwell Fyfe, Home Secretary, in the absence through illness of Mr. J. S. Maclay, Minister of Transport. The Opposition amendment calling for a review of the financial basis of the British Transport Commission and introducing a reference to denationalisation of road haulage, did not result in anything more than reiteration of the Government intention to denationalise road haulage. The Opposition did not wish to advocate the raising of fares, and therefore did not vote against the motion, and the amendment was negated by a comfortable majority.

Two facts emerge from the debate: there is to be no subsidy for the railways, and the Government is determined to retain the differentials in the case of sub-standard and concession fares. The intention not to subsidise the railways is welcome. The necessity for nationalised transport to pay its way is a fundamental principle of the Transport Act, and Government recognition of this was expressly stated by Sir David Maxwell Fyfe during the debate. It has always been our view that any alternative would be unsound, not least in its effect on the quality of the transport services which would result. A Conservative Government could hardly advocate a course of action resulting in the necessity to subsidise nationalised transport, even to mitigate hardship to an important element in the electorate; but it is reassuring that the intention is clearly expressed.

Government reluctance to countenance any elimination of anomalies in fares where this would mean a sharp increase in a previously sub-standard fare, and, therefore, hardship to those concerned in their daily lives with the amount of the season-ticket rate or other fare, has outweighed a clearer and more sober consideration of the economics of transport. In the case, for instance, of the choice of place of residence because of a low season ticket rate to the place of work, it is reasonable that the possibility of a rise at some future date in the cost of travel should be a risk accepted by the daily traveller just as other possible increases, as in municipal rates, are expected. The hardship to certain categories of traveller of a rise in such fares should not debar the British Transport Commission from altering its charges in the performance of its statutory duties.

The ironing out of anomalies has been accepted as one of the main functions of the charges schemes which the B.T.C. is bound under the Transport Act to present to the Transport Tribunal. Nevertheless, the Government has decided that such anomalies must be perpetuated. As to the concessions to different categories of passenger, the retention of which was urged by Sir David Maxwell Fyfe, it is hard to reconcile favouring of individual classes of railway user, however deserving, with the operation of transport, whether nationalised or privately owned, on a commercial basis. It seems only too clear that the Government decisions on sub-standard fares and on concessions have been based on political rather than on economic transport considerations. The standstill in fare increases outside London and contemplated adjustment of fares within the London Area are estimated to cost the B.T.C. some £2,500,000 in a full year. Sir David Maxwell Fyfe in the debate tended to make light of this loss of revenue, as the Government plans for amending the Transport Act would lower the cost of transport; he did not reveal these plans, which will be shortly the subject of the White Paper.

The debate did not show the Government in a good light. Whatever the merits of its scheme for the reorganisation of nationalised transport, the Government's interven-

tion in the matter of passenger fares has been as unsound as regards the economics of transport as it seems politically inexpedient, and can only complicate fulfilment of the Government's plans for transport. One of its less happy features is its trifling with the existing constitution of nationalised transport—of which much play was made by Mr. Herbert Morrison on behalf of the Opposition. It is not clear, for instance, how the fares standstill order, which is so much at variance with the principles adopted by the B.T.C. in pursuance of its statutory obligations, could have been made by the Minister in accordance with Section 4 of the Transport Act, "after consultation with the Commission"; this consultation seems to have been more in the nature of an intimation of the Government's intention. The perpetuation of anomalies may cause worse difficulties, for inconsistencies tend to engender others even more difficult to abolish; moreover, in the case of some sub-standard fares, the original reason for charging a sub-standard rate may have disappeared in the course of years. All prices have risen and many are still rising, and that the increase in passenger fares, even before Government intervention, would bring the cost of passenger travel up to only some 90 per cent. above prewar, in happy contrast with the prices of other services and commodities.

In our view it would have been far better, both practically and politically, to have permitted the fare adjustments to have taken place. The present Government could then have pointed to the higher charges as the result of the action of the Socialist régime. Any adjustment could have been made in the light of the economies which the Government expects to flow from its own reorganisation plans. As it is, the party which appears to be on strongest ground in this matter is the British Transport Commission. That body can claim with justification that it has acted in accordance with the legislation under which it was constituted; that the fares policy was approved by the Transport Tribunal, and confirmed by the Consultative Committee representing trading interests.

### Efficiency in Railway Coal Consumption

THAT the education and training of footplate staff in the best methods of carrying out their duties was a matter of paramount importance was the opinion expressed in a paper delivered at a joint meeting of the Institution of Fuel and the Institution of Locomotive Engineers, by Mr. R. G. Jarvis, Chief Technical Assistant (Locomotives), Southern Region, British Railways, on May 1. The speaker said that the aim of British Railways was to keep the consumption of coal to a minimum and this object was being pursued from every available angle. The recruitment and training of footplate staff and their subsequent instruction, were designed to ensure that the best methods of firing and driving were employed and that coal was not wasted through unskilled handling of the locomotive.

Locomotive design over many years had been developed with a view to economy in coal consumption, and many experiments had been carried out with varying success, to obtain a higher thermal efficiency. The proposed policy in British Railways locomotive design was based on the results of scientifically conducted tests and embodied the main attributes of the steam locomotive—simplicity, reliability and cheapness to build and maintain. Improvement in coal consumption had made considerable progress, for whereas figures of from 5 to 6 lb. of coal per drawbar h.p.-hr. were frequently recorded in dynamometer tests carried out 25 years ago, modern locomotives on the same class of work required 3 to 3½ lb. at the present time. Mr. Jarvis said that even with the most efficient locomotive, excessive coal consumption would occur if the efforts of the footplate staff were not as skilful as they should be.

The paper dealt at considerable length with the methods adopted on British Railways in the training of staff to ensure that the handling of locomotives by the footplate staff did not nullify any economies which improvements in design were expected to realise. He considered that the secret of good firing was a methodical sequence of applications of coal at about two-minute intervals, giving sufficient



time for each application to burn through, and the light smoke-haze to clear at the chimney, before the next application.

As he rightly points out, it is preferable to work a locomotive as nearly as possible at a constant rate of power output, provided it is reasonably consistent with the schedule. Moreover, this method assists the fireman, since it enables him to feed the grate at a reasonably constant rate, instead of having to maintain the boiler pressure under conditions of extreme steam demand and then preventing blowing-off at safety valves during the periods of coasting or lighter working. All locomotive firemen on British Railways, said Mr. Jarvis, were instructed in controlled firing, *i.e.*, the two-minute application, and were expected to apply it. Attached to the motive-power department were 90 firing instructors whose duty it was to teach correct firing methods to some 88,500 men in line of promotion, consisting of drivers, passed firemen, firemen, passed cleaners and cleaners, and to ride on locomotives to ensure their teaching was carried out.

An instructional film with sound track and running commentary had been made which clearly demonstrated what was required of footplate staff to economise in coal consumption and to obtain the best results; the film is exhibited to classes of enginemen during their training. The speaker said that another important aspect of firing was the correct use of the damper and the admission of "top" air to the fire at the firehole. Insufficient air led to smoke indications of incomplete combustion; but excess air, giving a clear exhaust from the chimney, carried away heat while serving no useful purpose. Tests showed that by opening the dampers a little too much, 7 per cent. more coal might be burnt than when air admitted was no more than adequate. Skilful manipulation of the fire, making full use of the damper, the blower, and the injectors, in conjunction with intelligent anticipation of requirements, could provide the steam required and avoid blowing-off at the safety valves.

Firing instructors were conversant with coal-weighing tenders from their wide experience as former enginemen, and it was of value to demonstrate to a fireman with their aid just how much coal was saved by applying the methods laid down, compared with any other way he might think more effective. For the training of enginemen and artisan staff at motive-power depots, several instruction trains were now available. Each train was in charge of a mechanical inspector specially selected not only for his knowledge and experience but for his ability to lecture and impart the information to the students in a manner they could understand. In the course of 18 months one of these trains was attended by over 25,000 students. British Railways use some 15 million tons of coal annually at a cost of £40 millions. Its cost has greatly increased, and in the light of this fact, combined with the need to export, the pursuit of every possible means for effecting economy in consumption becomes a matter of the utmost importance.

### Civil Engineering on the French Railways

**T**HOROUGHNESS and detail in planning, coupled with close supervision, are notable features of the maintenance organisation and work of the French National Railways civil engineering department. Between the district engineers and their inspectors, section engineers are valuable technically-trained links and play an important part in maintaining close supervision of all work in hand and in promoting efficiency; they themselves obtain early experience in handling labour. The highest administrators in the management are qualified civil engineers and therefore appreciate the difficulties of the civil engineering department. Each employee has daily tasks given him; on the way he performs them depend the bonus he receives and the rapidity of his promotion. He is encouraged to take courses and better his prospects in every way. The result is that the average French railwayman is keen and enthusiastic about his work. These were some of the points brought out in a paper "Observations on a Visit to the French Railways in 1949," given at the Institution of Civil Engineers on January 29, by Mr. R. G. Thurtle, whose

tour of inspection covered the Western Region of the French National Railways.

The Regional Civil Engineer on the S.N.C.F. is responsible for the Signal & Telegraph, Estate, and Electrical and Outdoor Machinery Branches. His department has an organisation consisting of a large head office staff and a number of districts, each under a district engineer responsible for about 900 miles of single track. The district is divided into some six sections under as many Section Engineers, who are assisted by signalling and electrical inspectors and about five engineering inspectors, each in charge of a sub-district containing four nine-men-gang lengths.

The standard track is laid with 93-lb. and 102-lb. rails in the open and 111-lb. in tunnels; the normal rail-length is roughly 59 ft. On the main lines the rails are seated on baseplates, but elsewhere they are laid directly on hardwood sleepers, usually unsquared creosoted oak or beech. Ballast is generally of stone of a rather larger size but more liberal in quantity than in Great Britain. All crossings except in sidings are cast in manganese steel, and their check- or guard-rails are fastened to the timbers independently of the running rails, and secured at the correct distance from the crossing nose by a steel strut, coach-screwed to the timber. Shrinking in the timber does not therefore tighten the gauge. Switches and stock-rails are of special rolled sections giving a tilt to the head though the bottom flange rests on level slide-plates.

An annual programme of week-by-week ordinary track maintenance includes "complete" repair of one quarter and "part" repair of a further quarter of the route length. "Part" repair is systematic fettling with measured shovel packing and includes the replacement of any component that will not remain efficient until the next "complete" repair is due; all other repairs appear to come under the heading "complete." Detail planning is possible because work-tables have been prepared for all sizes of gang, showing normal output expected and details of each man's task throughout every day. Each operation is therefore broken down into simple tasks each for one man to complete in a day, and for which he takes the appropriate tools. It is claimed that this system simplifies supervision, makes it impossible for the idler to do less than his fair share of work, and eliminates loss of time in fetching tools.

The usual hand and mechanical tools are used, but a few additional tools have been designed for specific uses, such as the Lemaire shovel for measured packing. Another is a coach-screw tightener. Electric-arc welding is used for building up and repairs to crossings and switches, and thermit welding is also the practice for joining up rails; a special technique has been evolved for welding manganese crossings. The Hallade track-recorder has now been superseded by the Mauzin coach, a normal bogie vehicle fitted with a third central bogie operating pens which register gauge, curvature, cant, and level of each rail. Instead of moving at a uniform speed, the paper strips on which the recordings are made run at a speed proportional to that of the vehicle, so that 20 cm. on the record represents 1 km. of track. Defects are thus more easily located on the ground, and it is unnecessary to write up before making copies. For comparison, a previously-made record can be run simultaneously.

Relaying is carried out by contract either by hand or mechanically at the choice of the contractor; he has to maintain the track for six weeks after relaying. One mechanical method is similar to that in Britain, but another is carried out with hand-propelled portals for lifting sections of new and old track. The portals run on light rails resting on wooden blocks at each side of the track and at about 10-ft. centres. The advantage of this method is that only one track is occupied, and progress is at such a speed that if ballast-cleaners and tampers are used in conjunction with the portals, it is they that control it. As well as the thoroughness of the maintenance, Mr. Thurtle was struck with the great amount of war-damage repair work accomplished by the French engineers and the manner in which they had seized the opportunity and used it with imagination to carry out extensive modernisation that will prove invaluable in future.



## Jubilee of the Swiss Federal Railways

THE year 1952 is a landmark in the history of the Swiss Federal Railways for it was in January, 1902, that the system as it is known today was formed by the amalgamation of several company-managed and -operated railways. Although there is no intention to celebrate the event with any festivities, which in view of the difficulties being faced by all the railways of Western Europe, might be regarded as inappropriate, it is a suitable time at which to recall the major developments in policy and technical achievement which have brought the Swiss Federal Railways to a level of efficiency probably not excelled by any other national railway system.

In any study of Swiss transport history it is to be borne in mind that Switzerland is a Confederation, some of whose Cantons are separated by the Alpine range. An adequate railway network was therefore essential to weld the nation into an entity. For the same reason railway construction was extremely costly, involving much tunnelling, hundreds of viaducts and bridges, and heavy earthworks such as cuttings, often in rock, and long embankments.

The nucleus of the Swiss Railways was the short line from Zurich to Baden, whose centenary was celebrated in 1947. In 1852, only a few years after its opening, the question arose whether, to ensure adequate railway expansion, development should be left to private enterprise or to the Confederation. Not, however, until 1897-1898 was the definite policy adopted of taking over five of the more important private lines and setting up the national enterprise which took the name of the Swiss Federal Railways. The operative date was January 1, 1902. Most of the lines concerned were in the north-east of the country. During the next few years many other important railways were taken over, notably the Jura-Simplon in May, 1903, and the St. Gotthard in May, 1909, although the actual amalgamation of the St. Gotthard did not take effect until October, 1913. At this time the length of the Swiss Federal Railways was 2,682 route km., and further absorptions raised the total to 2,751 km. by the end of that year; only 785 km. were double tracked. Events of note in this period were the construction of the first Simplon Tunnel, 14 km. in length, in 1906, and the Ricken tunnel of 8½ km. in 1910.

The war years 1914-1918 proved years of intense difficulty, largely because of shortage of fuel supplies, but construction and development continued on a major scale. The Frasnè-Vallorbe, link with the P.L.M., for example, was opened in May, 1915, and the Hauenstein line, with its 8 km. tunnel, near Olten was inaugurated a year later. Further acquisitions of company-owned railways had raised the total of route-km. to 2,926 at the end of 1951; 1,185 km. were double tracked and 96 per cent. were electrified.

In electrification the Swiss Federal Railways have achieved world-wide fame. The desirability of developing the country's hydro-electric resources, the entire lack of coal, and the lengthy stretches of railway in tunnel, afforded an admirable case for conversion to electric traction and the density of its population made its passenger services well-suited to electrified operation. The name of Emile Huber-Stockar will always be linked with this great development, which can also be characterised as a pioneering achievement.

Preparatory work began as early as 1902, and during the following years the noted firms of Oerlikon and Brown-Boveri played a notable part. First trials took place, using the 1,500-volt, single-phase a.c., 15-cycle system, on the Seebach-Wettingen line in January, 1905, and regular working followed two years later, but a halt was called in 1909 as the management was not sufficiently convinced at that time of the advantages of electric traction. Nevertheless, Brown-Boveri had offered meanwhile, in 1905, to electrify at its own cost the Simplon Tunnel section using the three-phase, 3,000-volt system at 16 cycles. This form of traction was inaugurated in June, 1906.

A Commission to study main line electrification was appointed in 1904. Basing its proposals on the development of national hydro-electric resources, the definite recommendation was put forward in 1910 to electrify the St. Gotthard

main line. It took over a decade to complete this major work—the Erstfeld-Bellinzona section was completed in May, 1921—but the major decision on policy had been taken and, today, except for a few branch lines, the Swiss Federal system is entirely electrified. Whilst main line electrification is automatically associated with the Swiss Federal Railways, the technical and commercial developments to which the administration can lay claim during the last two decades are by no means unimportant, even if overshadowed by the policy of electrification.

Of special interest is the lightweight passenger stock to whose smooth running qualities many tributes have been paid. Many fine stations are maintained in an enviable manner and kept spotlessly clean. Few European railways have done more to further tourist travel, both by ingenious forms of tickets and by impressing the ideal of courtesy on the personnel concerned with the travelling public. The Swiss Federal Railways have been aptly called "the turntable of Europe" and the great responsibilities they have undertaken with a high degree of efficiency in international railway questions, such as the administration for the European Timetable Conference, have ensured them high prestige in European railway circles.

## Kowloon-Canton Railway

THE financial results for the year ended March 31, 1951, of the British Section of the Kowloon-Canton Railway, as shown in the report of the General Manager, Mr. I. B. Trevor, provide another record. The year began with record passenger traffic in April, 1950; traffic remained at a high level for the rest of 1950, culminating in a record figure of 665,610 passengers in February, 1951, largely Chinese new year holiday traffic. Shortage of coaching stock caused overcrowding, and operating was complicated by the necessity of using Lowu, on the Chinese frontier, as a terminal, a function for which the station was never intended. The influx of travellers into British territory was checked by new emigration regulations introduced by the Chinese Government. One effect of these travel restrictions has been the virtual extinction of the small travelling trader and the greater economic strain imposed on the Chinese resident in Hong Kong by the inability of his relatives to move freely to and from their villages in South China. Discussions during the year with officials of the Chinese Section did not result in settlement of vital differences. One major improvement arising out of these meetings, however, was the working of all goods wagons through to Canton. Previously only cargo carried on Chinese Government account went through, the rest having to be transhipped at the border.

The following are some of the principal results:—

	1949-50	1950-51
Goods tonnage conveyed	104	372
Passenger journeys	5,264	6,055
	\$ H.K. thousands	
Goods receipts	761	2,871
Passenger receipts	6,461	7,158
Gross railway receipts	7,783	10,367
Railway operating expenditure	3,555	4,244
Net operating revenue	4,228	6,122

The increase in traffic was due to the same reasons as in the previous year, namely, the partial blockade of the Pearl River and China coast by the Nationalists during the earlier part of the year, and the difficulties of shipping companies in negotiating with the Chinese Government; the railway became for the time being the principal means of communication with Kwangtung and areas farther north. Much goods traffic which was normally carried direct to and from Chinese ports was diverted to Hong Kong, and many passengers who normally travelled by ship went by train. Goods traffic was much augmented by the buying and selling of raw materials in Hong Kong by the Chinese Government.

During the year, 130 44½-tonne bogie covered wagons and five 45-tonne bogie 10,000 gal. oil tank wagons, fitted with Westinghouse brakes, automatic couplers, and friction type central draft gear, were received from the United Kingdom.

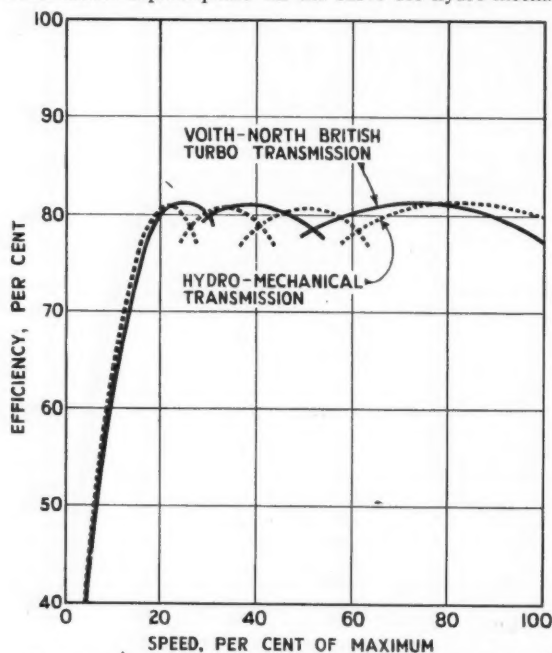
## LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

### Hydraulic Transmission for Diesels

April 24

SIR,—Hydraulic transmissions for diesel locomotives may have a high efficiency over a wide speed range without resorting to the complications of mechanical gear change. The accompanying graph shows the efficiency curve for the Voith-North British three-circuit turbo transmission superimposed on the curve for hydro-mechanical transmission.



Superimposed efficiency curves of turbo-transmission and hydro-mechanical transmission systems

nical transmission given by Mr. Koffman in Fig. 5b of his recent interesting article on the efficiency of diesel locomotives. It will be seen that there is very little difference between the two, although one has four ranges and the other three.

Yours faithfully,

L. G-COPESTAKE

North British Locomotive Co. Ltd.,  
110, Flemington Street, Springburn, Glasgow, N

### Pennsylvania a.c. Traction Motors

April 23

SIR,—After reading your article on the Pennsylvania a.c. freight locomotive in your April 18 issue, I would like to comment on the interesting development of field-weakening of the traction motors during starting.

In all designs of a.c. commutator traction motors, one of the difficulties during starting is the limitation of the heavy local circulating currents through the armature coils short-circuited by the brushes, due to transformer effects within the motor. Intense local heating obtains until the armature begins to move. If, for any reason, the locomotive cannot get away, heavy damage to the commutator and armature windings may result. The Americans have had bitter experience of such failures. In previous designs, therefore, a balance had to be struck between how far a designer dared go in obtaining a high starting tractive effort, with the local burn-out danger increasing in consequence; and how far a locomotive driver's skill could be relied on in getting his train away.

With field-weakening the danger of local heating is certainly reduced, but the armature is then subjected to increased general heating due to the higher load current required to maintain the tractive effort. For previous designs a ratio of maximum starting to continuous rated current of about 2 to 1 or less was generally adopted, using normal traction insulation. Now in the Pennsylvania locomotive motors this ratio has been increased to 2.4 with the use of Silicone-varnished insulation, taking advantage of its superior insulation stability at high temperature.

On the face of it, this development would appear to improve the starting characteristics of the a.c. traction motor. No comment has been made at all in the original A.I.E.E. papers on actual starting performances of the motors in service. Such information would be very useful in seeing if here lies the way for future work on this type of motor.

Yours faithfully,

PETER BARRAND

31, Ventnor Avenue, Belmont, Stanmore

### Railway Carriage Design

April 5

SIR,—Mr. B. E. Fisher's letter in your April 4 issue calls for an immediate reply, for it represents an attitude which if often adopted by officialdom to excuse lack of progress.

Questionnaires circulated amongst travellers, or observations of their habits, should be disregarded for several important reasons. First, where personal habits are affected public opinion is notoriously conservative, preferring the known to the unknown. It is not easy to alter a travelling habit formed collectively for over a century.

Secondly, the comparison is not with open stock as known to rail users today, but with something quite different, like the *Silver Princess* mentioned by Mr. W. R. D. Manning; such stock must be in service before the public can be expected to judge its merits.

Lastly, the purpose of any improvement is not merely to add to the comfort of the regular passengers, desirable as this may be, but to attract new traffic, and to make a profit by carrying it.

A progressive management should lead public opinion, not follow it, with the inevitable few decades lag!

Yours faithfully,

D. ROGERS

165, Priests Lane, Shenfield, Essex

### High Speed in French North Africa

March 31

SIR,—Your readers may be interested in the annexed table of 60 m.p.h. runs in French North Africa. All the runs listed are made by trains hauled by diesel or electric locomotives. The Moroccan train conveys first, second, third, and fourth class passengers.

Railway	Train		Miles	Min.	M.p.h.	Traction
C.F. Algériens	OA	Blida-Maison Carrée ...	24.8	22	67.6	diesel
	OA	St. Denis du Sig-Perrégaux ...	16.2	14	64.8	diesel
	AO	Orléansville-Relizane ...	54.3	51	63.8	diesel
	1012	Blida-Boufarik ...	8.4	8	63.0	diesel
	AO	Affreville-Orléansville ...	55.3	53	62.4	diesel
C.F. du Maroc	AO	Blida-El Affroun ...	11.3	11	61.5	diesel
	2	Rabat-Fédala ...	40.3	40	60.5	electric
C.F. Algériens	OA	Relizane-Orléansville ...	54.3	54	60.4	diesel
	AC	Sétif-St. Arnaud ...	19.1	19	60.3	diesel
Total ...			284.0			

Between Casablanca and Fez the average speed of six daily trains is 43.5 m.p.h.—4 hr. 38 min. for 201.3 miles. The fastest time is 4 hr. 22 min.—equivalent to 46.1 m.p.h. Between Algiers and Oran, six day trains cover

the 262 miles in an average time of 6 hr. 30 min. at 40.2 m.p.h. The fastest train takes 5 hr. 1 min. at 52.2 m.p.h. Over longer distances, it is possible to travel between Colomb-Bechar and Algiers (625 miles, 410 of which are metre gauge) in 17 hr. 16 min. at 36.2 m.p.h.; between Oran and Biskra (639 miles in 15 hr. 18 min.) at 41.9 m.p.h.; and between Casablanca and Algiers via Oran (843 miles in 22 hr. 5 min.) at 38.2 m.p.h.

Yours truly,  
VUILLET

58, Rue de Courcelles, Paris, 8

### The Origin of L.N.W.R. Black

April 18

SIR,—I observe that a correspondent in a letter to your April 11 issue, under the heading "The Value of Locomotive Names" mentions the name of *Lady of the Lake*. This brings to my mind an entertaining incident of the past which may not be generally known among your readers.

Some few months after Mr. Ramsbottom's 7-ft. 6-in. express engine, *Lady of the Lake*, No. 531, had returned from the International Exhibition of 1862 (where it was awarded the highest honour, a gold medal, for excellence of materials and workmanship) it was observed running in a

somewhat "untidy and sooty" condition. A close friend of Mr. Ramsbottom remarked to the great John, "I saw your lovely *Lady of the Lake* in London yesterday. She was most untidy. Her bright green dress has turned as black as the raven. Her appearance has been most untidy since she came back from the exhibition."

Mr. Ramsbottom later mentioned these remarks to Mr. Webb, who at the time was Chief Draughtsman at Crewe. The story continues, "The great chief stood thinking for a few moments and then replied, 'If my Lady is getting black at her work she should not be wearing a bright green dress. Give her a black one instead; it will suit her better for her work.'"

Thus it can be said that this incident first gave Mr. Webb the idea of the black livery for L.N.W.R. locomotives which he introduced in 1873. It may be here mentioned that as during Ramsbottom's régime the engines of the L.N.W.R. were being worked hard and fast, and little time was available for grooming them, their handsome olive green livery, introduced by him, was often neglected. When Webb succeeded Ramsbottom he wisely changed the colour to the well-known L.N.W.R. black.

Yours faithfully,

A. J. RICHARDS

21, Briar Field Road, Tyseley, Warwickshire

### Publications Received

*Modernised Up Marshalling Yard at Toton.* Reprinted from *The Railway Gazette*, November - December, 1951. London: Tothill Press Limited, 33, Tothill Street, S.W.1. 11½ in. × 8½ in. 31 pp. Illustrated. Paper covers. Price 5s. —The complete remodelling of the Up marshalling yard at Toton has been one of the most important works carried out on British railways since the war and was a venture requiring boldness in its conception and undertaking. The scheme involved taking up some 16 miles of track, altering levels throughout and laying about 27 miles of permanent way to an improved yard design. The remodelling, extensive modern equipment installed, and operation of the yard are fully dealt with in this booklet reprinted from five issues of *The Railway Gazette* and special attention has been given to signalling, which is a notable feature of the new yard. Among the 45 illustrations is a full-page single-line diagram showing the layout of both the Up and the Down yards. The Up yard, which was mechanised in 1939, was the subject of an earlier publication by *The Railway Gazette*.

*The Stock Exchange Official Year-Book, 1952.* Vol. 1. London: Thomas Skinner & Co. (Publishers) Ltd., Gresham House, Old Broad Street, E.C.2. 10 in. × 6½ in. × 2½ in. 1,845 pp. Price (2 volumes complete) £7 net (£7 2s. 9d. post free).—Volume 1 of the Stock Exchange Year Book for 1952 has now been issued. This year it includes the Financial Trusts, Land and Property, and Investment Trusts sections, so that Volume 2, to be published next September, will contain only the Commercial & Industrial and Mines sections. An addition to the Public Boards' information is a notice regarding the Iron & Steel Corporation of Great Britain, together with a table of compensation values of the securities of

companies taken over. In the Gas section of the year book, the remaining compensation values of gas companies' securities which were not available for last year's edition, have now been included. The Railways' section includes particulars of systems in Great Britain and overseas, with names of directors where applicable and financial details. A full index to both volumes will be published with Volume 2.

*Metropolitan-Vickers Calendar.* — We have received a copy of the Metropolitan-Vickers Electrical Co. Ltd. calendar for April, 1952, to March, 1953, which features a portrait photograph of a lady member of the firm's staff.

*The Australian Scene.* Published by the Australian National Publicity Association, Railway Building, Flinders Street, Melbourne, Victoria, Australia. No price stated.—The Australian National Publicity Association has brought out a new edition of its annual publication under this title. It is a collection of some sixty fine photographs which well exemplify the variety of Australian scenery, activities and industry, and its flora and fauna. Among photographs of railway interest is an impressive night study of a Victorian Railways class "H" locomotive hauling a fast freight train.

*In the Service of Industry.*—Information on a variety of the firm's products is given in an illustrated book recently published by Philips Electrical Limited. The subjects covered include arc and resistance welding, high-frequency generators, magnetic separators, electronic instruments, and industrial X-ray. The developments in the welding of stainless, and high-tensile steels are outlined with the development of the contact electrode for the welding of mild-steel which provides speed of deposition and root penetration. Also included are details of motronic equipment, in-

dustrial power factor correction, and filtration equipment.

*Visco Air Filters.*—A series of booklets illustrating the different uses of Visco air filter units has been published by the Visco Engineering Co. Ltd. The equipment is supplied in two principal forms, the Standard type for commercial purposes and the Duplex type where a high degree of filtering efficiency is necessary. The installations shown include air-compressors, diesel and electric locomotives, power stations, and so on. The Standard and Oil Spray types are illustrated by sectional diagrams.

*Rubber Developments.*—An article on the application of rubber to coach-building in the Spring issue of *Rubber Development*, published by the British Rubber Development Board, describes the use of swing link mountings for carrying railway vehicle bodies on bogies. In the system illustrated, the swing link units comprise a pair of drop arms or links bushed with Silent-bloc duplex rubber bearings. Rubber bushes are used also in the special draw-buff gear of the unit chosen for illustration.

*Holbit Grinders.*—Details of the firm's new Holbit grinder type "ABG" developed in conjunction with Abwood Tool & Engineering Co. Ltd., is given in a leaflet published by Holman Bros. Ltd. Two grinding wheels are fitted, one for redressing the gauge of cross and chisel bits. For redressing the cutting edge for cross bits the second grinding wheel is dressed to a double bevel of 40 deg. The machine can be used for general purpose grinding by fitting a 3 in. chuck to the workhead spindle. The leaflet is illustrated, and contains a diagram showing principal dimensions and other features. A specification of the machine is also included.



## THE SCRAP HEAP

### Early Morning Tea

When the "Aberdonian" express pulled out of York for London in the small hours of last Sunday morning, a passenger dashed out of the refreshment room, cup of tea in hand, and jumped on to the footboard. He tried to open a carriage door, but it was locked. For over a mile he clung to the door handle with one hand and his cup with the other, until his plight was noticed and the train was stopped. He was admitted to the train unhurt, still holding his cup of tea.

### Beer Engines

About 125,000 gal. of alcohol were stolen from a distillery at Lille—and the midget underground railway that carried it away was discovered on April 22. Thieves piped the liquor through the distillery floor. The railway, running on alcohol, carried it 150 yd. through a 6 ft. tunnel lit by a small electric power plant. The tunnel ended under a garage which contained a 600-gal. storage vat. —From the "News Chronicle."

### Viceregal Conveyance

Ninety years ago Robert Stephenson & Company supplied the Viceroy of Egypt, Said Pasha, with a combined locomotive and carriage for his personal use. It is illustrated in the latest report of Robert Stephenson & Hawthorns Limited, by whose courtesy we were loaned the original photograph reproduced herewith. The inside of the carriage was luxuriously upholstered in silk, friezed with the Viceroy's monogram, the Crescent and Stars. Decorations were in black, white and gold, designed by the late Digby Wyatt, specialist in Arabic design, and the painting was done under his personal supervision. The dome, safety valve covers, lamps, handrail fittings and other accessories were all gilded. There was a communicating door between the carriage and the engine footplate, so that His Highness could step out and drive himself when he felt disposed, the regulator, reversing and other handles

being made of silver. On completion the locomotive was tested on the North Eastern Railway, where it ran 22 miles in 21 min. start to stop. Today the combined locomotive and carriage is the principal exhibit in the Permanent Railway Exhibition on view at Cairo Station.

### Reinforced Concrete Rails?

They [railway carriages] are very heavy and the reason is that they have steel wheels running on steel rails. . . . I suggest that it is quite feasible to have rubber tyres. . . . One could also use reinforced concrete rails. That would give a grip which can only be achieved so far as steel wheels and steel rails are concerned by having a good deal heavier railway carriage.—Mr. Frank Bowles, Member for Nuneaton, speaking in the Transport Debate in the House of Commons on April 28.

### Keeping 'Em Quiet

You are entitled to any service, and in a free economy you will get it, if you are prepared to pay the cost of it. In some cases that means that a large number of people have to patronise a service, otherwise the costs are not covered. If the patronage falls off, the service will be contracted and eventually suspended. The remaining faithful patrons will be left in the air and will feel aggrieved, but they are not entitled to continued service below costs. . . .

A word to the Government. Don't start a fares-restriction scheme. Remember the rent-restriction scheme. It started in 1915 and has bedevilled the housing situation ever since.

Don't start any scheme for "getting round the next corner and keeping 'em quiet for the time being." You land yourself with an Old Man of the Sea. Food subsidies kept 'em quiet. Post-war credits kept 'em quiet. Purchase tax got round a wartime corner. Look at those incubuses now. Don't use the public utilities as a side line for the social services. First get the currency straight, and then see how prices come

out when the public, out of an uninflated income, pays for what it is getting.—George Schwartz in "The Sunday Times."

### Long-Term View

By the end of last week many travellers were heartily tired of being reminded that they were paying higher fares, sceptical about the prospects of any lasting relief, and generally embittered towards the harmless and well-meaning organisations brought into being by the Transport Act, 1947. Per-



### BEST IN THE LONG RUN

Wherever you wish to go, business or pleasure, there's a lot to be said for a journey by rail. Express trains with refreshment facilities take you to your destination quickly and in comfort. Some of Britain's finest scenery can be seen from the carriage window.

### TRAVEL BY TRAIN

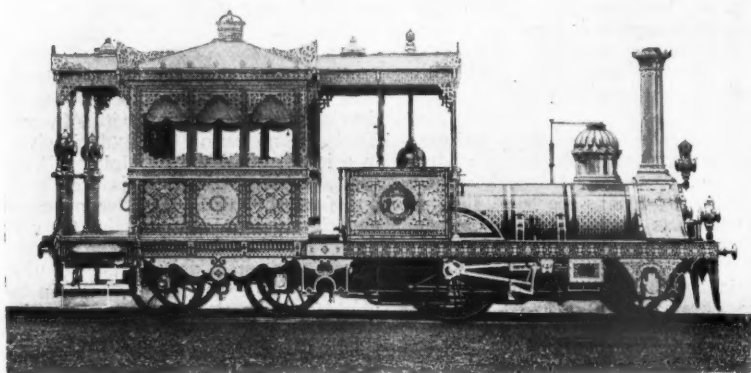
BRITISH RAILWAYS

A recent British Railways poster by A. N. Wolstenholme recalls some of the attractions of travel by train.

haps it was opportune that they could be reminded by the British Railways "Best in the Long Run" poster reproduced herewith that, temporarily unnoticed amid the din of controversy, express trains continue to carry numbers of people about the country in reasonable comfort and with unquestionable reliability. The design by A. N. Wolstenholme is admirably calculated by its line and colour to attract attention. Much of the best scenery can be seen from the train, and often the carriage window is the best vantage point.

### Inventor Caught Napping

Michiro Fuwa invented a "pick-pocket alarm" for people who ride in Tokyo's crowded trains. He boarded a half-empty train and took the device out of his pocket to show it to a friend. Then he dozed off. When he awoke his wallet had gone and so had the alarm he had forgotten to put back in his pocket.—From "The Daily Graphic."



A lavishly-decorated private saloon and locomotive built by Robert Stephenson & Company for the Viceroy of Egypt in 1862

## OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

### SOUTH AFRICA

#### New Line in North-Western Cape

The construction of a new line in the North-Western Cape to extend the Postmasburg-Lohathla line to Sishen, 19 miles, at a total estimated cost of £490,000, is being considered by Parliament. It is proposed to use 81-lb. rails on 2,112 new steel sleepers per mile, which will make it of main-line standard.

The line will be used principally for the conveyance of iron-ore for the South African Iron & Steel Industrial Corporation Limited, which has undertaken to indemnify the Administration against all losses in working for a period of thirty years.

Construction is expected to take about twelve months, and work will begin as soon as Parliament has approved the proposal. The Railway Board investigated the project last year and recommended the building of the line.

### ISRAEL

#### Line to the Negev

The proposals of two foreign firms, one French and one Swiss, to build a line into the Negev are being studied by a special Ministerial committee. They comprise a line from Beersheba to the Araba, via the Great Crater, where considerable deposits of phosphate rock are being quarried. French experts have suggested two routes for the Negev line, one branching off from Wadi Sarar, on the Tel Aviv-Jerusalem line, and the other an extension of the line from Migdal Ascalon.

### INDIA

#### Shorter Route to Kashmir

The 27-mile Mukerian-Pathankot broad-gauge line of the Eastern Punjab Railway opened to passenger traffic on April 7 by Mr. N. Gopalaswami Ayyangar, Minister for Railways. The line, built in two years, at a cost of Rs.3.77 crores, is 44 miles shorter than the existing route between Delhi and Pathankot via Amritsar. It runs south-north, passing through Hoshiapur, Kangra and Gurdaspur districts before reaching Pathankot, gateway to the three picturesque valleys of Kangra, Kulu, and Kashmir.

The apparently high cost of construction was mainly because of heavy bridging. The bridges over the Beas and Chakki rivers alone accounted for about half the expenditure. Consisting of 14 spans of 150 ft. each, the Beas bridge cost Rs.1.46 crores, and the Chakki bridge, with a single span of 350 ft. cost Rs. 44 lakhs. As much as possible local resources were used, but 35,000 tons of cement, 12,000 tons of steel girders and permanent-way material and 1,500,000 cu. ft. of pitching stone had to be brought long distances.

The fertile territory crossed by the line is surplus in foodgrains, yielding rich crops of rice, wheat, maize, and sugarcane. The area also has ancient associations.

The opening ceremony at Pathankot began with the lowering of an electric signal after Mr. Ayyangar had pressed a button. A few minutes later a special train slowly moved down the line to mark its formal inauguration. In the train were the Railway Minister; Sheikh Abdullah, Chief Minister, Kashmir; Mr. F. C. Badhwar, Chairman, and other members of the Railway Board.

### CANADA

#### Diesels for New C.N.R. Manitoba Line

The four diesel locomotives ordered by the Canadian National Railways from the Canadian Locomotive Co. Ltd., as recorded in the Contracts & Tenders section of our April 18 issue, will first haul construction trains on the 147-mile line being built between Sheridon and Lynn Lake, Northern Manitoba, and then work regular trains after the line is opened.

They will have the distinction of being the first diesels to operate so far north in the American continent.

It is claimed that it will be the first time that diesel locomotives will have been used in the construction of a new railway. As they will operate in territory where winter temperatures drop to 60° below zero, the locomotives

will be equipped with specially-designed heaters for maintaining the fuel oil in a liquid state, heating the cabs and the circulating water systems. They will also have their own fuel-filling pumps to take on fuel from barrels alongside the line.

Power will be supplied by six-cylinder, opposed-piston diesel engines similar to those now in use on the company's locomotives working between Montreal and Granby and Matapedia and Gaspe.

#### Freight Tonnage in 1950

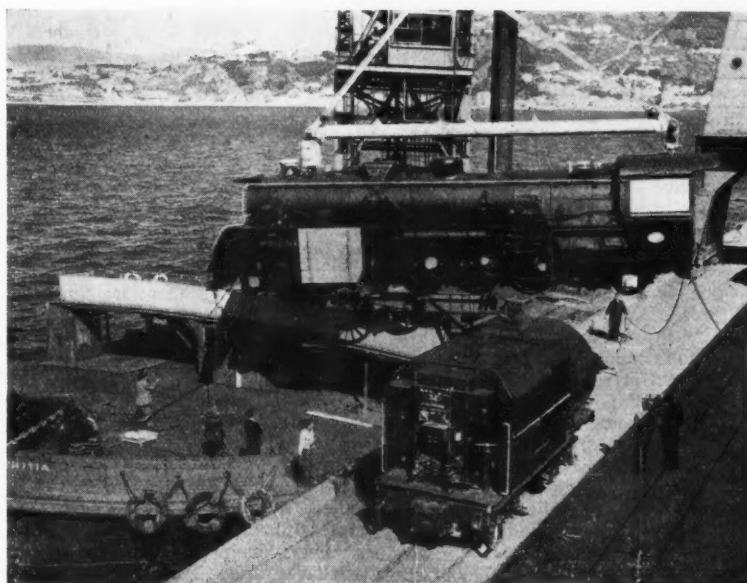
The railways hauled 144,218,319 tons of freight in 1950. The tonnage of mine products totalled 55,748,420 tons; manufactured products and miscellaneous merchandise 45,961,477; agricultural products 24,375,858; forest products 15,830,339; and animal products 2,302,225.

#### Operating Revenues

Operating revenues of the railways rose 7 per cent. in December to \$89,880,954, a new record for the month, compared with \$84,344,191 in the same month last year. Operating expenses increased 15 per cent. to reach a record monthly peak of \$83,385,817 (\$72,756,533). Operating income for the month was thus \$3,931,347 below the December, 1950, total of \$7,732,384.

All revenue accounts except mail and miscellaneous were higher than a year earlier. Freight earnings rose to

#### Delivery of New Locomotives for New Zealand



A class "Ja" locomotive being off-loaded by floating crane at Wellington, New Zealand. Sixteen of these locomotives are being built by the North British Locomotive Co. Ltd., for service on the North Island main line of the New Zealand Government Railways

\$68,846,594 from \$64,836,417, and passenger receipts to \$8,835,855 from \$7,502,266. All expenditure accounts were higher than a year earlier. Maintenance of way and structures totalled \$15,466,920 (\$11,854,260), maintenance of equipment \$18,801,964 (\$17,095,547), and transportation \$42,232,694 (\$37,464,577).

#### Ontario Northland Jubilee

The 50th anniversary of the turning of the first sod of the Temiskaming & Northern Ontario Railway, now the Ontario Northland Railway, is being celebrated this month. The railway, which is owned by the Province of Ontario, is inviting to North Bay all who attended the ceremony on May 10, 1902. It is seeking to collect photographs and reports of the event. The Premier of Ontario and members of the provincial cabinet are expected to attend the celebration.

### IRELAND

#### New G.N.R.(I.) Evening Services

An additional train at 5.55 p.m. from Dublin Amiens Street to Balbriggan, stopping at all stations beyond Malahide, was introduced on May 1. The former 6.15 p.m. Dublin to Belfast express now leaves at 6.20 p.m., and the former 6.33 p.m. Dublin to Howth, at 6.30 p.m.

#### New Leyland Bus for G.N.R.(I.)

One of four new Leyland Royal Tiger single-deck buses ordered by the G.N.R.(I.) has been delivered and put into service on the Dublin-Dundalk route. It seats 41 passengers, has a sliding door in the centre of the body, and is fitted with a six-cylinder "silent-running" diesel engine, capable of developing 125 h.p.

### SWITZERLAND

#### New Locomotives for Loetschberg

Two Bo+Bo 4,000 h.p. electric locomotives of the same type as Nos. 251 to 254 delivered between 1944 and 1948, and described in our August 16, 1946, issue, are being built for the Loetschberg Railway. Like those of their predecessors the mechanical portion is being built by the Swiss Locomotive & Machine Works, Winterthur, and the electric equipment is being manufactured by Brown, Boveri. There are minor modifications dictated by experience with the original four locomotives, whose mileage covered much exceeds 621,000 miles each.

Four first and second class compartment corridor coaches for international services are being built by Wagon-und Aufzugsfabrik, of Schlieren (Zurich), for the Loetschberg Railway. The design is the same as that of the six lightweight coaches built in 1950, and described in our June 16, 1950, issue.

Four third class bogie coaches used on international services are being reconstructed by the Loetschberg Railway at its Bönigen shops. These weigh

38 tonnes each, have nine compartments seating 72 passengers, and were not upholstered. They are to be upholstered in leather and the semi-partitions between the compartments are to be extended to the roof. Furthermore, their electric heating system is to be altered for use with both alternating current (1,000 volt, 16½ cycles and 50 cycles) and d.c. (1,500 volt and 3,000 volt) for operation also outside Switzerland.

Hitherto, these coaches had to be steam-heated in countries where their electric heating equipment could not be used. They will be ready to re-enter service this summer. In addition, the Loetschberg Railway owns eight more third-class bogie coaches for international traffic. These are of the same type as the foregoing and date from 1913, the year when the railway was opened.

#### New Bridge Near Geneva

A narrow, vaulted bridge carrying a road and tramway across the Geneva-Bellegarde main line at Ecu has been replaced by a new bridge of pre-stressed concrete of low structural height, giving sufficient clearance for the future electric equipment of the line and sufficient span to accommodate eventually a third track, which is to link Geneva-Praille Station with Vernier.

The bridge structure consists of 22 pre-fabricated, pre-stressed concrete girders forming part of a concrete slab cast *in situ* and stiffened by concrete transoms also pre-cast and pre-stressed. The main girders, weighing between 11 and 15 tonnes each, were manufactured at a nearby site and brought into position by means of two cranes.

### FRANCE

#### Dormitory Waiting Room at Limoges

Because of the situation of Limoges midway between Paris and Toulouse, and on the line between Bordeaux to Lyons, many express trains stop there between midnight and 4 a.m. During the winter there are nine, but in summer more than double this number. There are no local services in and out of Limoges between 11 p.m. and 5.30 a.m. Inevitably, many passengers have to wait during the night for connections.

The S.N.C.F. has therefore converted the first-class waiting room into a dormitory waiting room. Eight numbered reclining armchairs have been installed, each with an individual head lamp, and they can be hired by passengers waiting for connections. The room has been made largely soundproof. The second class waiting room is now used by both first and second class passengers.

There are two periods of hire, the charge for each being approximately 2s.; a chair may be hired for the whole night at a charge of 4s. The first period is for passengers arriving at Limoges by local services between 8 p.m. and 11 p.m., and leaving by the night expresses, the second for those arriving by the expresses and departing by local services after 5 a.m.

Passengers are awakened individually for trains, if advice of departure time is given when chairs are booked.

The facility has been well patronised since introduced at the end of last year. During December, 371 passengers used the chairs, contributing approximately £44. In addition, accommodation was not available for 105 intending patrons. The existing station staff can operate the room and the only additional charge to the S.N.C.F. is the cost of furnishing the room, and providing light and heat.

### AUSTRIA

#### Maintenance Arrears

At the opening of the second Semmering Tunnel on March 1, the Minister of Transport referred to the maintenance arrears of the Federal Railways. To restore the 1937 standard of the permanent way, he said, they would have to renew at least 200 km. a year; their arrears still amount to some 1,000 km. Of 381 bridges destroyed during the war, 115 are still only temporarily repaired. The six still not replaced include the great Nordbahn Bridge, and while this bridge remains out of use, lengthy diversions are required, costing 1,250,000 schillings a year. In spite of the high capital cost required, the reconstruction of this and other bridges is therefore an economic proposition.

Similar considerations apply to a proposal, recently voiced, to defer the costly repair of the first Semmering Tunnel and to continue, instead, the present single-track operation through the new tunnel. If this were done, the railways would have to spend 11,000,000 schillings a year in additional operating expenses.

### WESTERN GERMANY

#### Electrification in Bavaria

The Provincial Government of Bavaria has approved financial assistance to the Federal Railways for electrification of the Nuremberg-Fürth-Aschaffenburg section (120 miles), in rebuilding and new construction of stations, depots, and rolling stock.

#### Reconstruction of Cologne

The main station at Cologne, badly damaged in the war, has been temporarily repaired. The Federal Railways have decided to rebuild it on imposing lines, and have awarded a prize to Messrs. Waltenberg, Schmitt, and Brunner, of the Federal Railways Regional Management, Frankfurt, for their plan.

The design allows for the work to be carried out in three stages. First, the left wing will be built, consisting of shops on the ground floor, and an hotel and offices on the floor above. Later, work will begin on the right wing, where there will be a restaurant, bar, and tea rooms. Finally, there will be a large hall, which will form the central part of the passenger accommodation.

To save costs, the new station will be built mostly on the existing foundations.



## International Railway Research

*Organisation and activities of the Office  
de Recherches et d'Essais at Utrecht*

(From a Correspondent)

**D**URING the last twenty years there has been extensive adoption of scientific method by the technical departments of the European railways, some of which have formed research departments so as to bring their scientific activities into a single organisation. International co-operation in this field has now been made possible by the creation of the Office de Recherches et d'Essais (O.R.E.), the subject of comment in *The Railway Gazette* of May 25, 1951. The decision to found the O.R.E. was taken in November, 1949, by the Board of Management of the U.I.C. (International Union of Railways), thus anticipating one of the recommendations in the report of the 1950 O.E.E.C. mission to the railways of the U.S.A. Statutes governing the conduct of the O.R.E. were drawn up and subsequently approved by the General Assembly of the U.I.C. at Berne in November, 1950.

Railway administrations in some seventeen countries in Europe and the Near East, and the Compagnie Internationale des Wagons-Lits, participate in the O.R.E., and share the working expenses in proportion to their route-kilometrage. General management is vested in a Control Committee of representatives of eight administrations, including British Railways, represented by Mr. T. M. Herbert, Director of Research, and Mr. E. S. Cox, Executive Officer (Design). The Chairman of the Control Committee is Mr. F. Q. den Hollander, President of the Netherlands Railways, who has provided office accommodation and facilities in the railway headquarters building at Utrecht. Technical matters have been dealt with since February, 1951, by three engineers seconded by the Netherlands, French National, and British Railways. Because of the growth of the work, the staff is soon to be reinforced by engineers from the German Federal and Swedish State Railways, which will enhance the international character of the organisation.

### Responsibility to U.I.C.

The O.R.E. is an auxiliary organisation of the U.I.C., responsible to the Board of Management, and charged with co-ordinating and pooling the means and results of research and trials carried out by its members for their mutual benefit. Problems are referred to the O.R.E. by the Board of Management of the U.I.C., either at the request of one or more of the U.I.C. Committees, or at the suggestion of the O.R.E. Control Committee. To avoid duplication of work by the O.R.E. and the U.I.C. Committees, their respective spheres were defined and published in the U.I.C. *Bulletin* for November, 1951.

Two methods of research, which in-

cludes development and testing of equipment, are followed. In the first, a railway administration which is deeply interested in the subject, and has conducted or is about to conduct research on it, is asked to designate one of its specialists as *rapporteur* for the subject. Usually, two *rapporteurs* are nominated from separate administrations so that the work can benefit from two different points of view. The *rapporteurs* draw up a questionnaire which is circulated to the other administrations, and from the answers received they produce a report stating the present position, with suggestions for further research to be initiated and organised by the O.R.E. As some other international railway organisations use this method of collecting information, it is not popular with some administrations whose staff can ill spare time for many questionnaires from different sources. Although questionnaires are to some extent inevitable if needless repetition of tests is to be avoided, the O.R.E. is also trying an alternative method of collecting information.

This second method consists in arranging meetings of specialists on the subject in question at some convenient centre. The personal exchange of information avoids misunderstandings in questionnaires, especially if technical terms are mistranslated. Moreover, the information is collected, discussed, and distributed much more quickly than with questionnaires. Meetings can come to conclusions on the organisation of further research which could otherwise be attained only after prolonged multi-lateral correspondence. Three such groups of specialists are already functioning.

### Wagon Design

The first specialist group was formed early in the life of the O.R.E., to draw up designs for standard wagons for European standard-gauge railways. The Chairman is Monsieur Rimbaud, Chief Designer (Carriages & Wagons), of the French Railways, and British Railways are represented by Mr. C. A. Gammon, Assistant (Wagon Design). The group's first work was on high-sided open wagons (types 1 and 2) and covered wagons (type 2). Detailed designs of these have been prepared in the drawing offices of the French National and German Federal Railways, which, with the Belgian National Railways, have also built the prototypes. These have since undergone compression, vibration, and impact tests at the French National Railways testing station at Vitry before a decision is made to build series of wagons for tests in service.

The subsequent work of the first

group will provide standard designs for the following types of wagon: flat wagon (type 2), covered wagon (type 1), fruit and vegetable van, and two types of refrigerator wagon. Because of the British loading gauge, none of these new standard wagons can run in Britain.

### Protection Against Corrosion

The second group is concerned with the general protection of railway equipment against corrosion, and with paints and varnishes in particular. It is largely composed of the chief chemists of the administrations belonging to O.R.E., and met for the first time on October 5, 1951 at Utrecht under the chairmanship of Mr. F. Fancutt, Superintendent of the Chemistry Division of the Railway Executive Research Department. The first meeting was devoted to a general survey of the problem of protection, and to an exchange of information on the different methods adopted by the railways for preparing, protecting, and cleaning their rolling stock and structures. After an interchange of specifications and testing procedures, a second meeting was held on February 21, 1952, when physical methods of testing paints were compared and certain methods agreed for the mutual comparison of paints between the railways themselves.

The third group has recently met at Utrecht to make recommendations for future research on problems A4 and A5 in the list given below.

Questions at present under examination by the O.R.E. include:

- A1 Standardisation of catenary construction
- A2 Materials for pantograph contact strips
- A3 Behaviour of pantographs at high speeds
- A4 Methods of securing good electrical contact between wheels and rails on infrequently-used track-circuited lines
- A5 Insulating joints for track circuits
- B6 Stability of bogies when running
- B7 Strength of underframes
- B8 Transmission systems for diesel traction
- C9 Hunting in vehicles
- C10 Devices for improving stability of vehicles at high speeds
- D11 Methods of fastening rails to sleepers
- B12 Standardisation of goods wagons
- B13 Technical and economic comparison of diesel, gas turbine, and steam traction
- D14 Use of long-welded lengths of rails, and the influence of different types of ballast on their lateral stability
- C15 Influence of a reduction in gauge on the stability of vehicles
- D16 Use of rails inclined less than 1 in 20
- E17 Protection against corrosion
- E18 Lubrication
- C19 Relative hardness of tyres and rails to achieve minimum expense of maintenance and renewal
- O20 Development of machine for issuing "blank to blank" tickets without possibility of fraud

The scope and purpose of some of these questions are shown below:

**A2: Materials for Pantograph Contact Strips.**—Information has been sought in a questionnaire as to the best material or combination of materials to use for these strips, from the point of view both of

a reduction in contact wire wear, and of a reduction in interference to radio and telecommunications. The answers to the questionnaire have been received and a report is in preparation.

**B6: Stability of Bogies, C9: Hunting, and C10: Devices for improving stability of vehicles at high speeds.**—These three closely-related subjects have been put on the programme with the object of: (a) collecting and summarising the extensive research already done by several European railways on the behaviour of axles, bogies, and vehicles respectively; (b) making recommendations for changes in design which will improve the riding characteristics of vehicles, to increase the comfort of passengers and reduce the mutual wear-and-tear of vehicles and track caused by bad riding; and (c) planning future research and dividing it between the railway administrations which are the best equipped to do it. The answers to B6 and C9 are almost completed.

**C15: Influence of a reduction in gauge on the stability of vehicles.**—A certain amount of lateral play between wheels and rails is necessary, even on straight track; but when this is increased in the course of the time by lateral wear, vehicles ride badly. This causes an even greater rate of wear, and consequently the need for a more frequent renewal of tyres and rails. Other parts

of the vehicles and the track can also be affected adversely by excessive lateral play.

**D16: Use of Rails inclined less than 1 in 20.**—The 1 in 20 inclination of rails and type profiles is almost traditional. Some railways have experimented with tyres of cylindrical or other profiles, but without altering the rail inclination to suit. It is, therefore, not known whether the advantage claimed for these new type profiles would still continue after the rails had become worn to fit them. A large-scale experiment on this subject appears desirable.

**O20: Development of machine for issuing "blank to blank" tickets without the possibility of fraud.**—The issue of these tickets as blank forms to be filled in by booking clerks or ticket inspectors is open to irregularities and fraud. There is, therefore, a demand for a portable ticket issuing machine, similar to those used by some bus companies, and in which the carbon copy or other record is retained within the machine.

As considerable technical and financial advantages can accrue from satisfactory solutions to the problems which the railways have in common, the O.R.E. has been created to organise the necessary individual or co-operative research. It is at present, however, a research association without laboratories

or testing facilities of its own and must arrange for such work to be done by its members.

#### Inventory of Research Facilities

The three engineers seconded to the O.R.E. for technical purposes have, therefore, drawn up an "Inventory of Research Facilities." This has been compiled from information supplied, supplemented by personal visits to certain administrations, and includes particulars of railway laboratories and testing stations, the principal railway research equipment, and names of some of the specialists and their research facilities arranged according to subject and with brief indication of the more important problems investigated. There is also a list of national or industrial laboratories which work on railway problems.

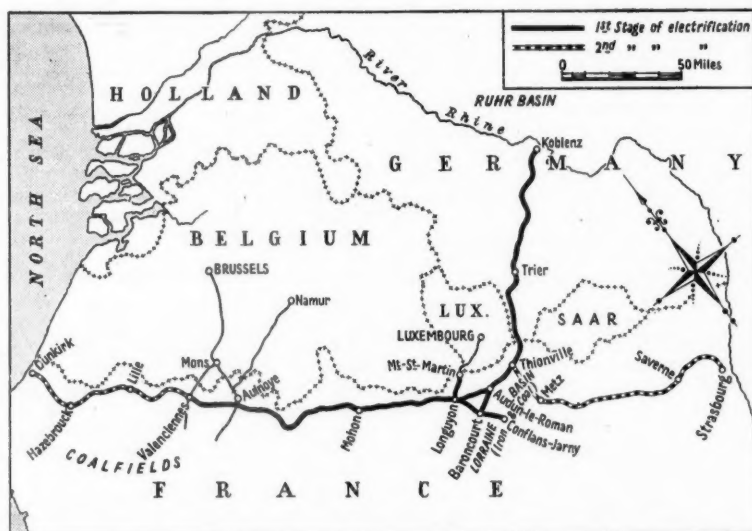
The inventory facilitates pooling of the means of research and permits the most modern and extensive equipment of individual administrations to be used for the solution of common problems.

The virtual absence of commercial competition between the railways makes technical co-operation on this scale relatively easy, and in this way it is possible for them to set an example for European co-operation on a wider scale. It is to be hoped, therefore, that the railways will support and use the O.R.E. to the fullest possible extent.

## Electrification in North-East France

AS stated in our July 27 and September 28, 1951, issues, the French National Railways are studying the electrification on the 50-cycle system of lines in the north-east. The work would be undertaken in two stages, as shown on the accompanying map. The first stage, it is proposed, would cover electrification between Valenciennes and Thionville with branches from Longuyon to Mont St. Martin and to Conflans-Jarny; and Audun-le-Roman to Baroncourt.

Aussuming the participation of the German Federal Railways, the Moselle Valley line from Thionville to Trier and Koblenz, on the Rhine, would be brought into this part of the scheme. The second stage would prolong electrification of the Valenciennes-Thionville line, from Valenciennes to Dunkirk and from Thionville to Metz and Strasbourg. The lines concerned carry a heavy mineral traffic and form the main connections between the industrial and mining regions of north-eastern France and the Ruhr basin.



Proposed extent of lines to be electrified on the 50-cycle system, including suggested complementary scheme in Germany

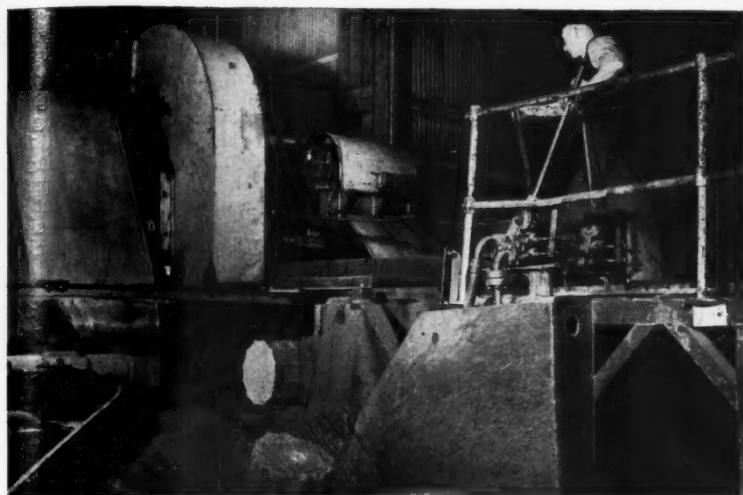
**EMERGENCY LIGHTING EQUIPMENT.**—An automatic non-maintained junior type emergency lighting apparatus with its associated battery of 14 Closed Top cells, will be shown by Pritchett & Gold and E.P.S. Co. Ltd. at the Castle Bromwich Section of the British Industries Fair. An

interruption in the mains supply automatically connects the secondary lighting circuit to the battery by means of a single-pole automatic mercury switch. An interesting feature of the Closed Top cells is the acid-tight lid which, moulded in Dagenite composition, is fitted with a

rubber ring. This is compressed between the lid and the sides of the glass cell-box to form an effective seal. The remainder of the exhibits will consist of a selection from the range of P. & G. batteries produced for many types of direct current duties.

## Continuous Process Wheel Rolling Mill

*Designed for continuous production flow for manufacturing carriage and wagon solid-tyre wheels or discs*



*Control platform of the Scriven ingot-breaker*

**A** FEATURE of the new railway carriage and wagon wheel rolling mill recently installed at the works of Steel, Peech & Tozer, apart from the design of the layout, is the close collaboration between the company, the Sheffield firms

responsible for the supply of the equipment installed and the works staff responsible for its operation. As a result of the new layout, production has increased by approximately 40 per cent., and production costs have de-

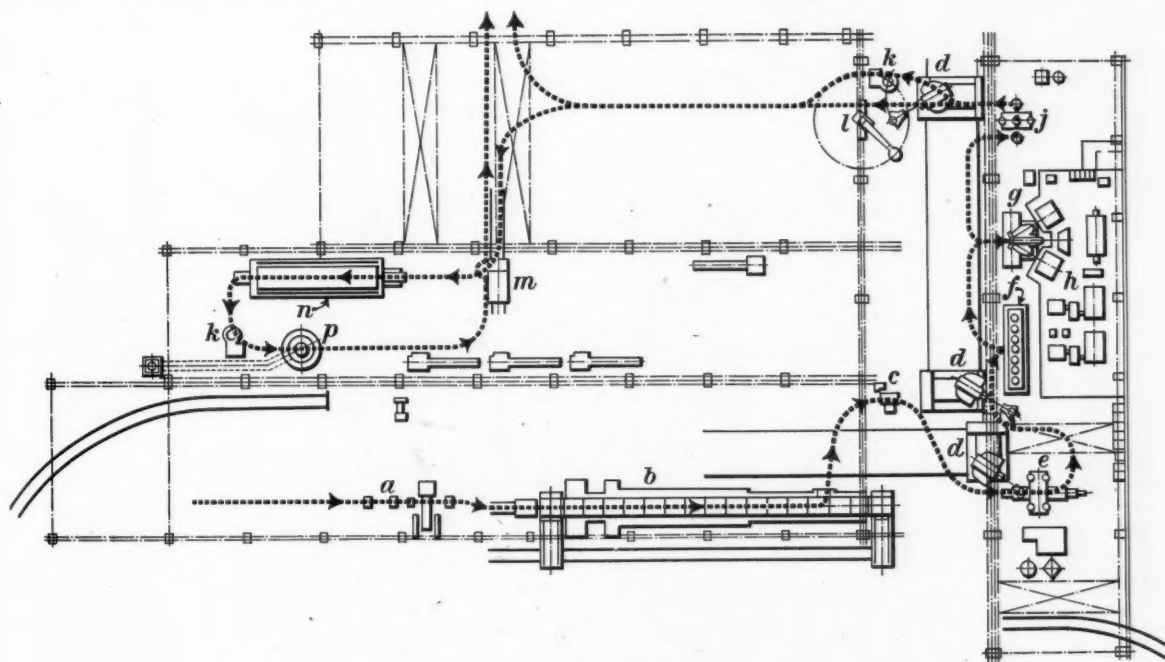
creased by some 33 per cent. Approximately 60 per cent. of the output is for export.

### Sequence of Operations

The new layout occupies some  $\frac{1}{4}$  acre, and is laid out on the continuous flow principle, from ingot cutting to Brinell testing. The wheel turning operations are carried out in a different department. Ingots are supplied from the melting shop, sizes being determined by the dimensions of wheels to be rolled. Ingots are first inspected for surface defects. Each ingot is divided into predetermined blocks of equal size, spaced by circular templates.

Before breaking, a series of nicks are cut on the surface by oxy-acetylene torch, extending one-third of the circumference of the ingot. The cutting torch is correctly positioned by a template fixed to the torch and located between circular templates. As a result each ingot is of the correct weight to form a wheel. The ingots are lifted to the breaker bed by means of magnetic crane. The ingot breaker is a Scriven horizontal, double-acting machine capable of breaking ingots up to 17 in. dia. into lengths not less than  $1\frac{1}{4}$  times their diameter.

The machine consists of a massive



*Diagram of layout showing the direction of flow*

a Ingot breaking machine  
b Block heating furnace  
c Scale breaker  
d Charging machines  
e 6,000 tons wheel press

f Re-heating furnace  
g Wheel rolling mill  
h Motor house  
j 1,500 tons dishing press  
k Water spray treatment machines

l Mono-rail jib crane  
m Transfer bogie  
n Hardening furnace  
p Tempering furnace





*Wincott continuous bogie type recuperative furnace for heating ingots*

crosshead supported on anti-friction rollers. The crosshead is actuated by a steel concentric secured to a high-tensile forged steel shaft; driven through reduction gears by a 100-h.p. induction motor at 970 r.p.m. which has a belt drive to a large flywheel; a hand-operated clutch is provided for engaging the crosshead. The clutch is heavily spring loaded, and is so designed that the machine stops in the middle of the stroke. It is thus not possible for it to stop with the crosshead to contact with the ingot.

The main body of the machine carries the pairs of steel breaking blocks, adjustable to varying centres to cater for different sizes of ingots; vertical adjustment is also provided by means of wedges and screw gear to give the correct setting for breaking. Hydraulic rams, with a pressure of 2,500 tons per sq. in. locate and hold ingots in position during the breaking operation.

#### **Gas-Fired Continuous Furnace**

After breaking, the ingots are inspected for surface defects which, if present, are burnt out by a deseaming torch. After loading on to the furnace bogies, the ingots are heated in a Wincott continuous bogie type recuperative furnace, coke oven gas fired, 120 ft. long, which accommodates 15 bogies each 8 ft. by 7 ft. 3 in. wide. An electrically-operated pusher having a thrust of 20 tons and driven by a 30-h.p. Metropolitan-Vickers d.c. motor moves the bogies through the furnace, operating in conjunction with a fully automatic, electrically-operated haulage mechanism for the transfer of bogies from the discharge to the charging end, along an external return track situated behind the furnaces. Limit switch control is provided. Four platinum-platinum-rhodium thermocouples are used in conjunction with multi-coloured light temperature-recording equipment. The air for combustion is pre-heated by two metallic recuperators.

The output of the furnace is 12 tons of ingots an hour, uniformly heated from cold to 1,250° C. Side discharge is provided by means of hydraulically-

operated doors. Ingots are transferred from the furnace to an electrically operated, cabinet type, descaling machine and from there to the wheel forging press by a Wellman, 25 cwt.-capacity charging machine. The span of the machine is 17 ft. The slewing radius from the centre of the grips to the pins is 17 ft. Driving speed is 400 ft. per min.

#### **Wheel Forging Press**

After descaling, the ingots are placed in a 6,000-ton wheel forging press by the Wellman charging machine. The press, supplied by Davy-United, is of the single-cylinder vertical four-column type operated by two hydraulic pumps

and air-loaded hydraulic accumulator with an hydraulic intensifier. The press is specially designed for wheel forging and is equipped with hydraulic mechanism for moving the slabbing and finishing dies in and out of the press. The press is also equipped with a hydraulically-operated swinging holder for the top slabbing die, pivoted on one of the columns.

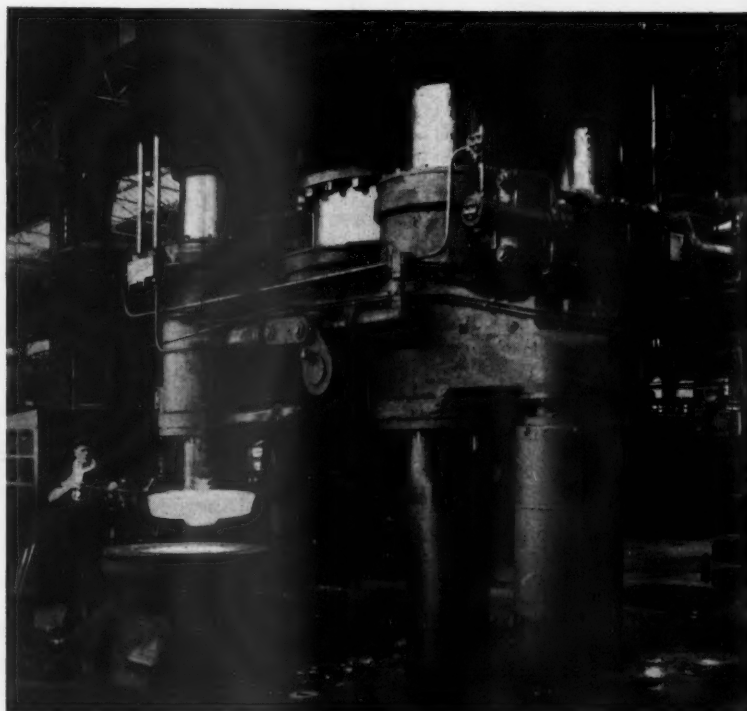
Mechanical handling gear is also provided for wheel blanks, consisting of two gripping arms with forked fingers at the end for working in between the press columns. The lifting of the ingot is effected by the movement of the press crosshead; the fingers grip the ingot at a suitable height, irrespective of its size, and also provide the means of placing the ingot in its correct position.

The ingot is first placed on the slabbing anvil and moved under the press, and the slabbing tool swung to its correct position. An initial pressure of 3,000 tons is applied, which serves to pre-form the ingot and loosens the scale, which is blown off the anvil by compressed air. The top slabbing tool is lifted and the blank ejected by the press crosshead into the final forming dies; the blank is positioned under the press by the hydraulically operated lateral movement of the table.

In the final forming operation the full power of the press is utilised; after the forming operation the axle holes are punched.

#### **Rolling and Dishing**

After the forming operation, the wheel forging has the characteristic shape of a wheel, but is thicker and smaller than



*Davy-United 6,000-ton wheel forging press used for the first operation*

the finished product. The forging is removed by a Wellman charging machine, and placed in a re-heating furnace. This furnace is of the Wincott batch type, fired by coke oven gas, and has a hearth 31 ft. wide by 5 ft. 4 in. deep. It has five doors, each of which is independently operated by a hydraulic cylinder and is capable of heating 30 wheel blanks an hour from 1,100° C. to 1,250° C.

After heating, the wheels are placed in a Davy-United vertical mill, which has five rolls (two web, two side or edging, and one back or tread) which combine to roll the wheel to the correct finished diameter and thickness, while simultaneously forming the tread and rim. The wheel is located and supported in the mill by a mandrel in the rough bore. Two adjustable brackets support and hold the mandrel during the rolling process. Water is sprayed continuously during the process of rolling to ensure that no scale is rolled into the wheel.

The mill is designed for the production of solid wheels from 18 in. up to



*Wincott batch type reheating furnace for wheel blanks*

relative to the tread; the identifying cast number is stamped on the wheel during the operation.

pressure Eddy Ray burners. The hearth is 49 ft. long by 4 ft. 9 in. wide, carried by a series of lifting units connected by



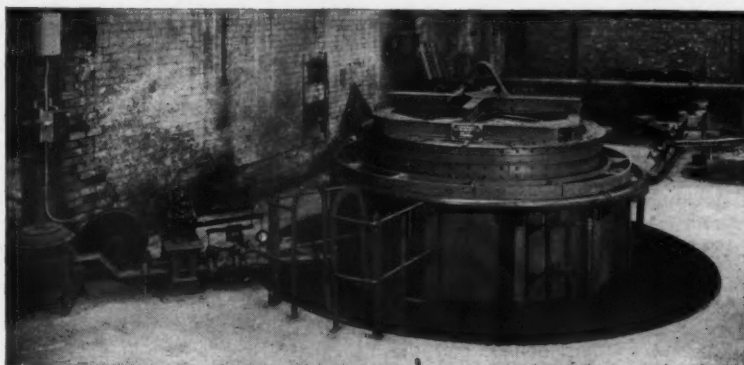
*Davy-United wheel rolling mill showing the control mechanism*

4 ft. dia. and up to 7½ in. face. It is also suitable for gearwheels up to 6½ in. on the rim. Each roll assembly is operated by means of a piston-type ram and cylinder, the ram having an extended adjustable tail rod, for the accurate limiting of forward and return strokes. The web roll is shrunk on to a spindle, and driven through a universal spindle by a 500-h.p. variable-speed motor. Accurate movement of the web rolls is effected by a separate pump, special metering valves controlling the fluid so as to adjust the speed of the rams; the tread roll is equipped with a similar ram.

On completion of the rolling operation the wheel is finished formed by dishing in a Davy-United hydraulic press of conventional design of 1,500 tons capacity. Power is supplied from the same source as that of the 6,000-ton press. During this process the wheel boss is pressed into the correct position

The nature of heat-treatment depends on the specification. The furnace is of the Wincott walking beam type, fired by coke oven gas, and provided with low

push-pull rods. The cycle of lifting, charging, lowering, and return is hydraulically operated and completely automatic. The furnace uniformly



*Wincott stabilising furnace, 6ft. internal dia. Capacity twelve wheels an hour*



*Davy-United wheel press of 1,500 tons capacity, in which the wheel is pressed to its final form*

heats the wheels from cold to 850° C. On removal from the furnace the wheel is placed on a rotating table and spun for a pre-determined period at constant speed, during which time the rim is water-sprayed by fixed jets. This provides a hard tread and care is taken to prevent water from splashing on other parts of the wheel. The temperatures of the wheels are allowed to even out and the wheels are placed in a Wincoff stabilising furnace fired by coke oven gas. The furnace is circular having an internal dia. of 6 ft., and is automatically controlled. Up to twelve disc wheels an hour can be dealt with. The wheel is then Brinell hardness tested.

#### Hydraulic Power

Hydraulic power is supplied to the plant by two Davy-United horizontal three-throw 15 in. stroke pumps, each having three rams, 4½ in. dia. David Brown reduction gear, driven by two 600 h.p. B.T.H. motors running at 720 r.p.m., is provided. The pumps run at 120 r.p.m. and are capable of a theoretical delivery of 280 gal. per min. against a working pressure of 3,000 lb. per sq. in. Hydraulic pressure from the accumulator service is 3,000 lb. per sq. in. maximum.

An air-loaded accumulator is included in the circuit, the characteristics are: useful water capacity, 300 gals.; total volume of air and water, 520 cu. ft.; air and water pressure, 3,000 lb. per sq. in. The accumulator has two water bottles and five air bottles, and the control gear provides for by-passing the water delivered from the pump according to the position of the water

in the accumulator, the pumps running continuously. A safety control is arranged to cut out the pumps at the high level, and to shut the accumulator stop valve at low level should the normal control instruments fail. An Igranic control panel is provided.

A vertical type intensifier low pressure ram is operated through valves by the fluid medium from the air accumulator at 3,000 lb. per sq. in. maximum, to act on a high-pressure ram which intensifies its fluid medium to 6,000 lb. per sq. in. maximum, the high pressure cylinder being interconnected with the main cylinder to the 6,000-ton press.

Three Wellman charging machines are provided in the layout, and are of the 25 cwt. ground type. The span of the machine feeding the 6,000-ton press is 17 ft. and that of the wheel-handling machines 20 ft.; the slewing radii are 17 ft. and 18 ft. respectively; driving speed is 400 ft. per min. The trolley runs on a substantial underframe supported on four 1 ft. 9 in. dia. wheels which revolve on fixed axles; two of these wheels being driven. The trolley wheels are supported on through axles, all wheels being driven. The roller path and centre pin bracket are mounted on the trolley frame, and the revolving part of the machine turns on cast-steel rollers.

The cast-steel roller path and rack are machined. A ball bearing takes the down-weight thrust and also serves to locate the machine about the centre pin. The slewing frame carries the operator's platform, which provides a clear view of the load in all positions.

Gripping of the blocks is effected by a motor-driven gear through a fluid coupling. This coupling takes up the load gradually and stalls at maximum pressure. A cast-steel charging bar carries the grips and can rotate through 360 deg. It is located and secured in a rocking frame which pivots on brackets forming the front part of the slewing frame. The charging bar is rocked up and down by means of a motor through a worm reduction gear and cranks.

**NEW MOTOR COACH FOR AIRLINE PASSENGERS.**—British European Airways has recently taken delivery of the first of 50 new motor coaches specially designed for the conveyance of passengers between airports and the town office. The vehicle bodies are being built by Park Royal Vehicles Limited, and are mounted on A.E.C. Regal Mark IV chassis. The design is the result of joint research which has been conducted by British European Airways and the London Transport Executive, which operates and maintains the Corporation's passenger coaches in the London area.



*Hydraulic pump and motor house*



## Locomotives for Tasmania

*Designed to negotiate a minimum curve of 330 ft. without widening the gauge*

**A**MONG the orders recently completed at the Darlington Works of Robert Stephenson & Hawthorns Limited are ten 3 ft. 6 in. gauge locomotives for the Tasmania Government Railways. Known as the "M" class, the engines are designed with an approximate maximum axle load of 10 tons, and are capable of negotiating a minimum curve of 300 ft. without a widening of the gauge.

### Design Features

The boiler barrel is constructed in three rings, the smallest being 4 ft. 5½ in. inside dia., and the distance between tubeplates is 15 ft. 1½ in. A Melesco superheater, type ESB, is fitted, and was supplied by the Superheater Co. Ltd.; an anti-vacuum valve is fitted in the

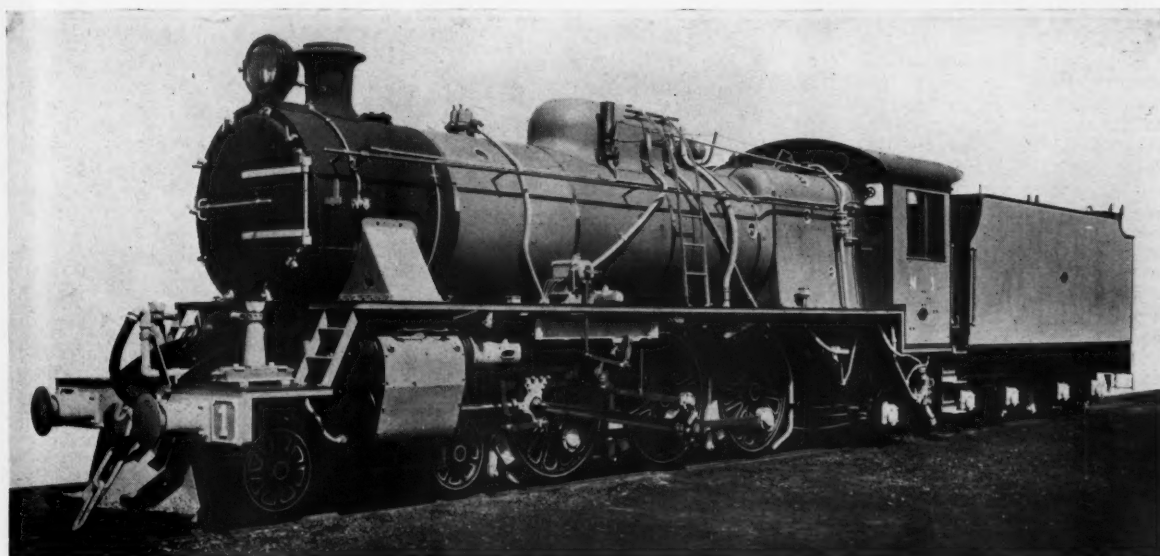
superheater. There are 18 large tubes 5¼ in. outside dia. 8 s.w.g. thick and 68 small tubes 2¼ in. outside dia. 11 s.w.g. thick.

A Belpaire-type firebox is fitted with an inner firebox of steel of all-welded construction. The first four rows of roof stays are flexible. The water space stays are of Longstrand steel and flexible stays are fitted in the breaking zone. The brick arch is carried on three arch tubes. Washout and inspection doors are of the flat-end type and all fusible and washout plugs are of standard T.G.R. pattern. The regulator is of the Vulcan balanced type and is located in the dome.

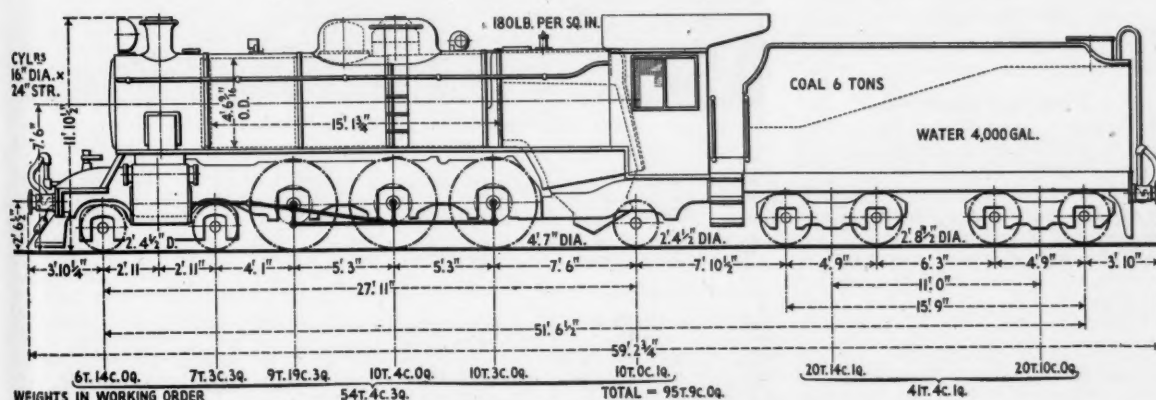
A hopper-type all-welded ashpan is provided and the firegrate is of Hulson pattern. Coal watering and ashpan

drench cocks are provided. The smokebox, which is cylindrical, is equipped with self-cleaning plates with front baffle. The boiler and firebox are lagged with asbestos mattresses and fitted with crinoline bands on which mild-steel clothing sheets are secured by steel bands. An Everlasting blow-off cock is fitted on the left-hand side of the firebox immediately above the foundation ring and is provided with the standard steam separator.

Two No. 9 Gresham & Craven R.C.W. live steam injectors are located below the cab platform, supplying water to a top feed clackbox on the top of the first barrel ring. Klinger water gauges are fitted and a steam stand is carried on the top of the firebox immediately in front of the cab. The two 2¼ in.



*Tasmania Government Railways 4-6-2 locomotive having an axleload of 10 tons*



*Principal dimensions and weights of the locomotive*

safety valves are of the Ross pop type. The working pressure is 180 lb. per sq. in.

#### Engine and Tender Design

The plate frames are arranged at the hind end to suit a truck of the Hodges type, and overhead spring gear is provided, compensated throughout the coupled wheels and trailing truck. The cast-iron cylinders are provided with liners of cast iron, and the steam chests are equipped with N.C.-type by-pass valves. Cardew pressure relief valves are connected by piping to the cylinder covers. Paxton Mitchell type packing is provided at the piston rod gland.

Connecting and coupling rod main bearings are fitted with Skefko roller bearings, and all wheels are of the SCOA-P type in cast steel. Axleboxes

are equipped with Skefko roller bearings. The engine brake is steam, and the tender and train vacuum operated, the gearing being fitted with Mintex bushes. An 8-feed Silvertown mechanical lubricator supplies oil to the steam chest cylinder barrel and piston rod glands.

The electric lighting is by J. Stone & Co. (Deptford) Ltd. and sanding is by gravity from a box on the top of the boiler barrel. A Hasler speed indicator is fitted.

The tender tank is of semi-welded construction, the frame being constructed from channels and sections with steel castings front and rear. The tenders are identical with those built by the Vulcan Foundry Limited for the 4-8-2 locomotives recently supplied to the Tasmania Government Railways.

Inspection was carried out by Messrs. Preece, Cardew & Rider, Consulting Engineers, and the engines are being shipped fully erected.

The principal dimensions of the locomotives are as follow:—

Cylinders (2) ...	16 in. dia. x 24 in. stroke
Bogie and truck wheels ...	2 ft. 4½ in. dia.
Coupled wheels ...	4 ft. 7 in. dia.
Heating surface:	
Boiler tubes (68), 2½ in. outside dia. ...	601 sq. ft.
Flue tubes (18), 5½ in. outside dia. ...	371 sq. ft.
Firebox and arch tubes ...	136.5 sq. ft.
Total evaporative ...	1,108.5 sq. ft.
Superheater elements ...	265 sq. ft.
Grate area ...	23.1 sq. ft.
Boiler pressure ...	180 lb. per sq. in.
Adhesive weight ...	40 tons
Engine weight in working order ...	54 tons 4 cwt.
Tender weight in working order ...	41 tons 4 cwt.

## Portable Chain Saw

*Pneumatically operated  
general purpose machine*

A RECENT addition to the range of portable tools manufactured by Holman Bros. Ltd. is a pneumatic powered chain saw. The machine works on the chain mortise principle and can be used as a saw, but is also capable of cutting slots through timber floors without drilling preliminary holes. Designed for one-man operation, the machine is especially adaptable for use in confined space and can be used for vertical or horizontal cutting.

A possible application of the machine is the cutting of timber for repairs to wooden railway wagons where motorised machinery is not available, and where the installation of such expensive equipment is not an economic proposition.

The cutting member is an endless link chain, driven through a sprocket and gearing by an exceptionally robust compressed-air vane-type motor. Each link has a cutting tooth formed on its outer edge.

The chain surrounds and runs in a channel formed in the guide plate which is roughly of rectangular shape with a rounded end. The width of the cut is sufficient to allow the guide plate to follow through.

#### Method of Operation

A single control lever operates the saw. The lower side of the cutting chain runs towards the operator and this must always be the cutting side with the front of the saw frame bearing on the log or timber. A slight rocking motion of the saw with light pressure will ensure a



*Holman pneumatic portable chain saw*

clean and speedy cut. The cutting chain can be sharpened after removal from the machine by filing the teeth to the correct angles while held in a vice.

To obtain maximum efficiency atten-

tion should be paid to the care of the chain and correct lubrication at all points. The weight of the machine is 39 lb., the length of cut 20 in. and the width of cut ⅞ in.

**BRITISH STANDARD FOR FLUORESCENT LAMPS.**—An addition to the series of British Standards for electric lamps has recently been published. This is the first British Standard relating to fluorescent lamps and is concerned with tubular fluorescent lamps designated "MCF/U"

which, since they are available in a variety of colours and luminous efficiencies have been classified under a series of codes. The standard deals only with the 5-ft. 80-W hot cathode lamp, but standards for the other fluorescent lamps will be prepared as and when sufficient data are available as a

result of their performance in service. Copies of the new standard (B.S. 1853: 1952) may be obtained from the British Standards Institution, Sales Branch, 24, Victoria Street, London, S.W.1. Price 2s. 6d. The Standard is opportune considering the growing use of these lamps.

## RAILWAY NEWS SECTION

## PERSONAL

Colonel Amado Bautista has been appointed President & General Manager of the Manila Railroad.

Mr. C. T. Hutson, O.B.E., A.M.Inst.T., Assistant Superintendent of the Line, East African Railways & Harbours, who, as recorded in our April 25 issue, has been appointed Chief Commercial Superintendent, was born in 1906 and received his early railway training with the L.N.E.R. in the North Eastern Area. He joined the Kenya & Uganda Railways & Harbours in July, 1929, and, after holding various appointments in the Transportation Department, was promoted to Assis-

Sir David R. Pye has been elected as President of the Institution of Mechanical Engineers for 1952-53. He is Provost of University College, London.

Mr. David K. Buik has been elected a Director of Canadian Pacific Steamships Limited. He was formerly special representative in London of the President of the Canadian Pacific Railway. His headquarters will continue to be in London.

Mr. D. D. Bartlett, A.M.Inst.T., Assistant Superintendent, Transportation, East African Railways & Harbours, who, as recorded in our April 25 issue, has been appointed Chief Operating Superintendent, joined the G.W.R. in 1931 and, after

Mr. H. E. A. White, Assistant District Motive Power Superintendent, Bristol, Western Region, has been appointed District Motive Power Superintendent, Neath.

Mr. F. G. Dean, A.M.Inst.T., Assistant (Operating) to Mr. V. M. Barrington-Ward, Member for Operating, Railway Executive, who, as recorded in our April 25 issue, has been appointed District Operating Superintendent, Worcester, Western Region, joined the G.W.R. in 1925, in the Traffic Department, and in 1934 was appointed to the Divisional Superintendent's Office at Paddington. He gained experience in all sections of this office until January, 1939, when he became



**Mr. C. T. Hutson**

Appointed Chief Commercial Superintendent,  
East African Railways & Harbours



**Mr. D. D. Bartlett**

Appointed Chief Operating Superintendent,  
East African Railways & Harbours



**Mr. F. G. Dean**

Appointed District Operating Superintendent,  
Worcester, Western Region

tant Superintendent in 1939. In December, 1945, Mr. Hutson became Assistant Superintendent of the Line, and in the King's Birthday Honours List of 1946 he was awarded the O.B.E.

Mr. Colin Morrison, Assistant to Commercial Superintendent (Goods), Scottish Region, has retired.

The Minister of Transport has appointed Mr. J. Mann, who is a representative of Scottish local authorities, to be a member of the Central Transport Consultative Committee for Great Britain. Mr. Mann is President of the Association of County Councils in Scotland and Convener of the County Council of Lanark.

The appointment of Mr. José Rivera R. as Managing Director of Ferrocarril del Pacifico, S.A. de C.V., Mexico (formerly Southern Pacific Railroad of Mexico), was announced in our March 14 issue. Mr. Enrique M. Gonzalez has become Vice-President of the board of Directors and Mr. Augustin Garcia López is President. The board also includes the following: Messrs. Angel Carvajal; Rafael Mancera, Chief Accountant; Manuel Sanchez Cuen; David Vargas Bravo; Ignacio Soto, Jr., and Carlos Careaga. Mr. José de Jesús Ledesma is Secretary of the board.

obtaining station and headquarters' office experience, was selected for a course of special training, which terminated just before the outbreak of war. In 1940 he was seconded to the Railway Executive Committee, and in June, 1941, became Junior Assistant to the District Traffic Manager, Plymouth. After appointments in the Gloucester and Bristol Divisions, he became Assistant Divisional Superintendent, Gloucester, in 1943, and was transferred to Bristol in a similar position in 1945, becoming Senior Assistant a year later. In December, 1948, Mr. Bartlett resigned his appointment with British Railways on accepting the post of Assistant Superintendent, East African Railways & Harbours. On arrival in East Africa he was stationed at Dar-es-Salaam. Mr. Bartlett is a Brunel Transport Medallist of the London School of Economics.

Mr. W. H. Reynolds, Head Office Signalling Inspector, North Eastern Region, York, has retired.

Mr. R. K. Innes, who recently retired as Chief Mechanical Engineer, Bombay, Baroda & Central India Railway (now Western Railway), has joined the Technical Department, Skefko Ball Bearing Co. Ltd. A portrait and biography of Mr. Innes appeared in our February 22 issue.

Junior Assistant to the Divisional Superintendent at Birmingham (Snow Hill). Two years later he transferred to Swansea in a similar capacity, and later succeeded to the post of Chief Clerk in the Swansea Divisional Superintendent's Office. In 1942 he returned to Birmingham as Assistant Divisional Superintendent. Mr. Dean was, in 1945, appointed Assistant to the Chairman of the Operating Committee of the Railway Executive Committee, and on nationalisation became Assistant (Operating) to Mr. V. M. Barrington-Ward, Member for Operating, Railway Executive.

Mr. J. H. Wiersum has been appointed Manager of the Office of Metropolitan-Vickers Electrical Export Co. Ltd. at The Hague, Holland, in succession to Mr. H. F. Bibby.

Mr. P. F. Grant, who, as recorded in our April 25 issue, has been appointed Assistant to the Chief Accountant, Western Region, Paddington, entered the G.W.R. service in 1921 in the Chief Accountant's Office. After gaining experience in several Sections, he was placed in charge of New Works in 1949, and, in the following year, was appointed Head of the Special Section. He has since represented the Chief Accountant on various committees and other investigations.





**Mr. J. H. Collier-Wright**

Appointed Assistant Chief Commercial Superintendent, East African Railways & Harbours

Mr. J. H. Collier-Wright, B.A.(Oxon), Assistant Superintendent, Transportation, East African Railways & Harbours, who, as recorded in our April 25 issue, has been appointed Assistant Chief Commercial Superintendent, was born in 1915 and educated at Bradfield College and Queen's College, Oxford. He joined the L.N.E.R. as a traffic apprentice in September, 1936, and received training in the North Eastern Area. Having served in the Army throughout the war, he was demobilised in December, 1945, with the rank of Lt.-Colonel. In March, 1946, he accepted the post of Assistant Superintendent, Kenya & Uganda Railways & Harbours, and was stationed at Nairobi. In November, 1947, Mr. Collier-Wright was awarded the American decoration of Legion of Merit (degree of officer), for war services.

Messrs. B. Leigh and W. A. Anderson have retired from Metropolitan-Vickers Electrical Co. Ltd. after many years service on the London Office staff. Mr. Leigh took part in setting up a London Traction Bureau to co-ordinate the various Westinghouse activities in Europe. Mr. Anderson was Superintendent, London Meter Department.

Mr. G. W. Murrell, M.C., General Agent, Bristol, Canadian Pacific Railway, who, as recorded in our April 4 issue, has been appointed General Agent, Liverpool, joined the Allan Line as a junior clerk in London in 1908; the Allan line was absorbed by the Canadian Pacific in 1917. He enlisted in the ranks of the Royal Fusiliers in September, 1914, and was commissioned in 1916; he was wounded three times and won the M.C. On being discharged in 1919, he returned to London and joined the C.P.R. Passenger Department. When the company opened its Southampton Office in 1922, Mr. Murrell went there as chief clerk in the Passenger Department. He moved to Birmingham as Passenger Agent in 1936, and to Bristol in the same capacity in 1950. He took charge of the Bristol Office, as General Agent, on August 1, 1950. Mr. Murrell is a founder member of the Birmingham and Bristol Skat Clubs; he is a Past President of the Birmingham club and the present Chairman at Bristol.



**Mr. J. A. Addington**

Appointed Assistant Chief Operating Superintendent, East African Railways & Harbours

Mr. J. A. Addington, M.A.(Oxon), Assistant Superintendent, Transportation, East African Railways & Harbours, who, as recorded in our April 25 issue, has been appointed Assistant Chief Operating Superintendent, was educated at Downside School and Brasenose College, Oxford, where he took an honours degree. After a course of two years' training in the North Eastern Area of the L.N.E.R., he entered the service of the Kenya & Uganda Railways in 1941 as an Assistant Traffic Superintendent. He was promoted to District Traffic Superintendent in 1947 and to Assistant Superintendent (Operating) in 1950.

Mr. P. T. Sheridan has been appointed Outdoor Assistant to the Road Freight Manager, Coras Iompair Eireann.

Mr. S. F. Smith, Head of the Electronic Instruments Department of Philips Electrical Limited, has recently been awarded the Bessemer Premium, by the Society of Engineers, for his paper entitled "Electronic Instrumentation as Applied to the Study of Vibrations in Industry."

Mr. W. Chambers, Revenue Accountant (Coaching), Eastern and North Eastern Regions, Marylebone, who has retired, was educated at the Stand Grammar School and joined the Great Central Railway at Manchester, in 1907. Until 1914, when he joined the Public Schools Battalion of the Royal Fusiliers, his experience was mainly in the Audit Office. He resumed duty in the Audit Accountant's Office in 1918, and in 1924 was appointed Inspector & Traveling Auditor of Dean & Dawson Limited; in 1930 he became the Accountant of that company. Mr. Chambers returned to the L.N.E.R. in April, 1940, as Supernumerary Assistant to the Divisional Accountant (Coaching). From October, 1940, he was District Auditor for the L.N.E.R. in Nottingham, and he continued to hold this position until 1944, when he was appointed Chief Coaching Audit Clerk in London. In 1945 he became Assistant to the Revenue Accountant (Coaching), and was appointed Revenue Accountant (Coaching), Eastern and North Eastern Regions, in January, 1948.



**Mr. J. G. Norton**

Appointed Assistant (Salaried Staff), Office of Regional Staff Officer, L.M. Region, British Railways

Mr. J. G. Norton, hitherto Chief Personnel Officer to the Hotels Executive, who, as recorded in our March 21 issue, has been appointed Assistant (Salaried Staff) in the Office of the Regional Staff Officer, London Midland Region, British Railways, was educated at Kilburn Grammar School. He joined the L.N.W.R. as an apprentice clerk in February, 1915, and after service in the Audit Department was transferred to the General Manager's Office in the same year. After war service in Palestine and France, Mr. Norton returned to the General Manager's Office, L.N.W.R., in 1919, and, subsequent to the amalgamation, continued in the General Manager's Office of the L.M.S.R. In 1926 he entered the Labour & Establishment Department, dealing with welfare, wages and conditions of staff, negotiating machinery and other staff matters. For a period before the recent war Mr. Norton served on sub-committees of the Railway Staff Conference, and on the outbreak of war was transferred to the Conference as Assistant Secretary. He was appointed Secretary of the Conference in August, 1947, becoming also Secretary of the R.E.C. Staff Committee, the Special Joint Committee on Machinery of Negotiation for Railway Staff and the Railway Staff National Council, also Secretary of the Employers' Side of the Railway Shopmen's National Council, the National Railway Electrical Council, the Railway Workshop Supervisory Staff National Council, and the Railway Police Central Conference. In 1948 he became Chief Personnel Officer to the Hotels Executive.

Dr. A. O. Hagger, M.R.C.S. (England), L.R.C.P. (London), who has been appointed Assistant Medical Officer, Eastern Region, was educated at Taunton School, and studied medicine at King's College (University of London) and Charing Cross Hospital, London, where he qualified as M.R.C.S. (England), L.R.C.P. (London). He volunteered for the Army at the outbreak of war, and saw service in France and Norway. He was appointed as House Physician to the Senior Physician of Charing Cross Hospital, and spent two years in general practice in Beaconsfield, where he now resides.

Mr. T. G. Davies, at present General Manager of Rhondda Transport Co. Ltd., has been appointed General Manager of Western Welsh Omnibus Co. Ltd.

Among those due to arrive at Liverpool today, May 2, in the Canadian Pacific liner *Empress of France* is Major General Charles P. Fenwick, Chief of the Medical Services of the Canadian Pacific Railway.

We regret to record the death on April 22, at the age of 65, of Mr. William B. McAdam, Labour M.P. for Salford North between 1945-50, and the author in 1924 of a booklet entitled "The Birth, Growth, and Eclipse of the Glasgow & South Western Railway."

We regret to record the death, at the age of 67, of Mr. William Wordie, O.B.E., T.D., D.L., M.Inst.T., who, until shortly before nationalisation, was Managing Director of Wordie & Co. Ltd., the former road carriers and railway cartage contractors.

Mr. N. G. Lancaster, an Assistant Managing Director of Tube Investments Limited, has been appointed Executive Deputy Chairman of the Group's aluminium subsidiary companies: TI Aluminium Limited, Reynolds Light Alloys Limited, Reynolds Rolling Mills Limited and the South Wales Aluminium Co. Ltd. Mr. W. H. Bowman and Mr. J. H. Catling, Joint Managing Directors of Reynolds Rolling Mills Limited, Reynolds Light Alloys Limited and the South Wales Aluminium Co. Ltd., have been appointed Joint Managing Directors of TI Aluminium Limited, the administrative and selling organisation of the Tube Investments Aluminium Division.

Mr. T. F. Eldridge who, as recorded in our April 18 issue, has been appointed Divisional Superintendent "A," responsible for the Metropolitan and Bakerloo Lines, London Transport Executive, with the rank of principal executive assistant, joined the Metropolitan Railway as a ticket sorter in 1903. After serving successively as goods clerk, chief goods clerk and stationmaster, he was appointed District Inspector (Metropolitan & G.C. Joint Line) in 1936. He became Assistant District Traffic Superintendent in 1940 and District Traffic Superintendent in 1947. During the 1914-18 war Mr. Eldridge served in the Railway Operating Division of the Royal Engineers.

**G.W.R. SPECIAL TRAINEES' ANNUAL RE-UNION AND DINNER.**—The twenty-first annual re-union and dinner of the former G.W.R. special trainees took place at the New Norfolk Hotel, Paddington, on April 25. The arrangements this year, in accordance with past practice, were by the 1922 group of trainees, and in the absence of Sir Reginald Robins, Commissioner for Transport in East Africa, Mr. B. H. Bristow, Chief Welfare Officer, Western Region, British Railways, took the chair. The function was attended by about 40 members of the training scheme. Mr. H. Bolton, District Commercial Superintendent, Bristol, proposed the toast, "British Railways," and Mr. E. Havers, Assistant to Commercial Superintendent, Western Region, proposed the toast of "Colleagues Overseas and Colleagues in Industry," to which Messrs. A. J. Pragnell, formerly Deputy General Manager of the Nizam's State Railway, and D. H. Dillow, recently retired from the Malayan Railways, replied.

## Transport Inquiry in Northern Ireland

*Evidence before Northern Ireland Transport Tribunal on the working of the Ulster Transport Authority*

When the hearing opened in Belfast on March 25 of the inquiry, preliminary details of which appeared in our February 16 issue, which the Transport Tribunal in Northern Ireland is holding into the operations of the Ulster Transport Authority, Mr. C. Nicholson, for the Authority, justified the efforts which had been made to keep the losses of the undertaking within bounds. The Authority's estimate of a £150,000 saving from the closing of the Belfast & County Down Railway, except the Bangor line, had proved correct, but it did not understand why an abandonment order for the closed lines had not followed the Tribunal's order to discontinue the services. There seemed to be little hope of financing the Authority's railways from profits from freight carried on the roads. Private road haulage was increasing, and illegal carrying was causing a loss to the Authority of £275,000 a year.

Mr. Nicholson was followed by Mr. A. Morrison, Chief Officer (Special Duties), U.T.A., who began by reviewing some of the history of transport in Northern Ireland since road transport began to challenge the supremacy of the railways. He dealt in detail with the figures showing the decline in railway revenues before the war, which was halted during the war, but was resumed after it. The fact that an abandonment order had not yet been obtained for closed sections of the Belfast & County Down Railway and the N.C.C. involved the Authority in expenditure of £5,000 a year.

### Stimulating Rail Travel

The Authority had done all it could to help the railways and assist the transfer to them of passenger traffic from the buses. Railway services had been improved by eliminating some stops where road services could accommodate the passengers, but there was no evidence that the public had responded. Extra trains, the transfer of bus terminals to railway stations, making road season tickets available by rail, and the use of buses as feeders to rail services were among methods tried to stimulate rail travel.

The "fighting chance" which existed on October 1, 1948, of giving Ulster a self-supporting road and rail public service had been destroyed by causes arising since then, beyond the control of the U.T.A. These included the rise in wages and salaries and in the price of goods and materials, the additional petrol tax, and a fall in the spending power of the public. Mr. Morrison said that the only justification of the high road fares of 1948 was the need to make profits to help the railways to meet the Authority's responsibilities under its Act. The Authority had applied no increases in fares between its formation in October, 1948, and November, 1951. Because of the large increase in season ticket travel there would probably have to be some adjustment in the balance of rates between ordinary and season tickets. There was also a case for abolishing first or second class on the railways.

In the year ended September, 1951, the Authority's buses carried 98,622,677 passengers, compared with 28,425,283 by its road predecessors in 1936. Ordinary passengers totalled 61,253,771 (21,889,393 in 1936); weekly tickets, 16,382,152 (2,896,606); monthly tickets, 18,688,911 (3,639,284).

There was little room for increasing passenger facilities, which might even have to be restricted because of rising costs.

The Act which created the U.T.A. did not provide for the procedure if the Authority, which took over undertakings incurring heavy losses, could not operate on a self-supporting basis immediately. The only course was to default. Mr. Morrison believed that the policy framed by the U.T.A. in 1948 had been sound. Had costs remained more or less at 1948 levels the Authority would probably have "pulled through" but the steep rise in costs had made its task impracticable. No commercial concern could have assumed the task given to the U.T.A. on the basis of making itself self-supporting.

Mr. Morrison refuted a suggestion by Counsel for the Ulster Association of County Councils that the profit (£10,000 in 1948) shown by the Bangor line under the County Down management had been "converted" into a loss of £66,117 in three years. The fact was that the trading position in Ulster had deteriorated to that extent. On the N.C.C. lines, where losses were £71,517 in 1949, £206,000 in 1950, and £219,000 in 1951, reduction in losses from the closure of non-paying lines had been minimised by the increase in costs. The new £642,000 road and rail workshops in Duncrue Street, Belfast, were not an "extravagant experiment," as suggested.

The U.T.A. often hired lorries from private owners, paying them what it recovered for the public less 10 per cent. It found this economical but it had not invited any private trader to run any part of its services. To a suggestion that the Bangor line would pay if it were run on a split-shift system with trains carrying peak period crowds and no trains during the off-peak periods, Mr. Morrison retorted that most of its traffic was season ticket traffic and no railway could pay its way on that alone.

Counsel for the U.T.A. supported its reply to Bangor Council to a request for information on the Bangor line. The Authority had answered that "under the strain of providing information for its own case" it could not answer all the questions in the Council's nine-page questionnaire. To reply in detail to "this formidable document" would require the services of a complete staff.

The Chairman of the Tribunal (Sir. A. Babington) suggested that Bangor Council should simplify its request and said that the question of discontinuing services on the Bangor line would not be dealt with at the inquiry.

The inquiry was adjourned until April 21.

**KEITH BLACKMAN PRODUCTS AT THE B.I.F.**—Exhibits by Keith Blackman Limited at the British Industries Fair, Castle Bromwich, will comprise Tornado products of various kinds including Nos. 27 and 12 centrifugal fans, No. 14 paddle wheel fan, Extravent and axial (R.M.) fans on panel, W.1100 wet type and T.250, T.500, and T.1100 dust exhausting and collecting units. In addition a wide range will be exhibited of other Tornado products, including fans, steel plate blower, heater battery, unit heater, combination chamber, and gas equipment. Other equipment will include oil film and dry filters.

## Debate on Passenger Fare Increases

*House of Commons debate on fares  
standstill order and financial basis of B.T.C.*

Sir David Maxwell Fyfe (Home Secretary) (in the absence through illness of Mr. J. S. Maclay, Minister of Transport) on April 28 moved:

"That this House approves the action taken by the Minister of Transport to suspend the introduction outside the London Area of new railway charges which would have increased disproportionately the cost of season tickets, workmen's fares, and concessionary rates for special classes of passenger; upholds the decision that these disproportionate increases should not be applied to railway charges outside the London Area; and agrees that means should be sought of applying the same principle, so far as practicable to the rail and omnibus fares already introduced within the London Area."

The principle on which the Government were acting, said Sir David Maxwell Fyfe, was that, while the public could rightly be called upon to pay the cost of reasonable transport services.

They considered that it was unfair to call on particular classes of passengers to pay increases out of all proportion to those applicable to the public generally, and which caused an unexpected upset in their daily lives.

Such increases, he went on, illustrated the tendency of the vast organisations created by the Socialist Government to regard the public as a mere disposable economic unit.

The fares which the B.T.C. already charged in London and would charge in the rest of the country were likely to cause undue hardship to a large section of citizens.

### Concessions Withdrawn

The Passenger Charges Scheme, 1952, he said, left the Commission free to abolish all concession fares subject again to the maximum increase of 42 per cent. In a number of cases increases of this order would actually occur. It included commercial travellers, members of the mercantile marine travelling on leave, shipwrecked mariners, and other deserving classes.

The effect on B.T.C. finances of withdrawing or reducing concessions did not justify depriving particular classes of passengers of privileges which they had long enjoyed and which were granted by the former railway companies for good and sound reasons. The Government realised that the Commission had had to meet large increases in the cost of labour and materials.

### Subsidies

Sir David Maxwell Fyfe added that it had been made clear that if transport charges had remained static the Government would have had to subsidise the B.T.C. in some form. This the Government did not propose to do. They must not destroy the incentive of the Commission to effect economies. Subsidies which merely served to conceal economic facts performed no useful service to the community.

The Government was in no doubt about their powers or duties in the matter of intervention in the fares question. Section 4 of the Act empowered the Minister to give a direction to the Commission if he thought it was in the national interest.

Parliament had deliberately inserted that provision.

In the last resort the Government and Parliament were the shield against injustices. They had not required the Commission to do anything at variance with the decisions of the Transport Tribunal embodied in the order of February 27, which laid down the maxima in which the Commission had power to levy charges, and the Government had not sought to vary them. All they intended to do was to temper the wind to the more severely shorn lambs.

The Government, he said, believed that the Minister could work out with the Commission a means of preventing a rise in the sub-standard fares out of all proportion to the rise in ordinary fares.

It had been impracticable to direct a standstill in London, but it was intended that, as far as practicable, the same principles should apply in London as in the rest of the country, though it might take longer.

### Responsibility for Fare Fixing

Mr. Collick (Birkenhead—Lab.) asked whether this meant that the Government intended to take the responsibility of fixing the fares.

Sir David Maxwell Fyfe said that during the standstill outside London the Ministry and the Commission would work out the means by which the differential of sub-standard fares was maintained, which could be done in a way to obviate the need of further directions.

### Labour Amendment

Mr. L. J. Callaghan (Cardiff South—Lab.) moved an amendment to add the following words to the motion:—

"But regrets the vacillation and lack of co-ordination between Ministers which have caused the present confused position and further regrets that in coming to its present decision, the Government have made no proposal for making up the deficit in the Commission's revenue which would be further adversely affected if road haulage were denationalised; and accordingly calls for a review of the financial basis of the British Transport Commission, reaffirming the view that the interests of the travelling public and commercial users and those engaged in the industry will be best served by the integration under public ownership of road and rail transport, as provided in the Transport Act, 1947."

Mr. Callaghan asked whether the Government really meant to uproot road transport before it had had a chance to take root in order to satisfy their electoral promises.

### Deficit on Transport

In reply, Sir David Maxwell Fyfe said that before the Transport Tribunal the Commission had said that their estimated deficit for 1951 might be anywhere between zero and £10,000,000, but that £5,000,000 would be a safe figure. The accounts for 1951 had not been published, but it would seem that before the present increases came into operation there would in all probability not be any deficit at all. The financial position would not be affected to any appreciable extent by the suspension of the increases outside London.

All the adjustments they had in mind,

including London, might result in diminution of the Commission's estimated income by some £2,500,000 a year.

### Road Haulage

Turning to the reference in the amendment to the denationalisation of road haulage, Sir David Maxwell Fyfe said so far the Road Haulage Executive had been a financial burden on the Commission. It was expected that the results for 1951 would show an appreciable operating surplus hardly surprising in view of the fact of the Commission's virtual monopoly and freedom from control over charges.

Nevertheless, the operating surplus for 1951 was likely to do little more than meet the Executive's share of the Commission's central charges, including interest on relevant transport stock.

### Challenge to Opposition

The amendment, he continued, called for a review of the financial basis of the B.T.C. If the unequivocal words meant anything at all, the reviewers were not to consider any adverse effect that nationalisation might have. The choice was whether concession fares should stay, and, if they stayed, whether the increase should be broadly in accord with the increase to ordinary fares, or whether it should be so much greater as to cause undue hardship to those who used and relied on them. He dared the Opposition to vote against the motion.

### Criticism of Government Intervention

Mr. Herbert Morrison (Lewisham South—Lab.) criticised Mr. Winston Churchill for not opening the debate, in view of his reported personal intervention in the fares question. The Opposition, said Mr. Morrison, had no intention of voting against the Government on the motion.

The Minister of Transport, he suggested, had not really consulted the B.T.C. under Section 4 of the Act. The Government had been frightened into intervention by the local election results, and he suggested that the Prime Minister had over-ridden the Minister of Transport with or without a hurried Cabinet decision.

### Plea for Transport Inquiry

There was a case for an inquiry, Mr. Morrison went on, possibly of the B.B.C. type, which would include Members from both sides of the House. There was much to be said for examining efficiency, the use of industrial consultants, overheads, administrative, and managerial charges. Former shareholders had been compensated under the 1947 Act, and if the railways under private enterprise could not have paid a dividend equivalent to the compensation now being paid, there was a case for investigating whether a part of the capital charges for the railways ought not to be remitted, probably at the public expense, because there was an element of equity to the Commission in this respect as there was to private shareholders.

### Railway Maintenance Grant

There was a case for consideration whether the Commission should not have a grant towards capital charges and main-



tenance of the permanent way of the railways. When it wished to close down a branch line on commercial grounds and the Government wished to keep it open for strategic reasons there was a case for the Government compensating the Commission. He did not like the idea of a general subsidy to publicly owned industries, because it could make everybody careless.

#### Commission Consulted

Mr. Gurney Braithwaite (Parliamentary Secretary, Ministry of Transport) said that the Commission was consulted about the standstill. There were conversations between the Minister of Transport and the Chairman of the Commission. The powers under which the Minister of Transport acted were inserted in the Act by the Opposition.

They must not complain if the Government were making use of them.

Individuals had been hard hit by increases in fares on a scale which was out of all reason. It was those cases of hardship which the Government were determined to remedy and without any breach of the principle, to which they attached importance in 1947 and still attached importance, that charges generally should be dealt with outside politics. Major injustices, to a minority, whether on season tickets or workmen's fares, were a matter for the Government and for that House, and the Government would not shirk their responsibility.

Replying to Mr. Callaghan's inquiry about the £18½ million, Mr. Braithwaite said that the total increase asked for by

the Commission was £21 million. The amount allowed by the Tribunal was in the vicinity of £18 million, of which London was covered by £13 million, and the rest of the country £5 million. Of that £5 million about £3 million was obtained on January 1 by an increase of monthly returns, leaving them with the figure of £2.1 million.

Something had gone wrong, added Mr. Braithwaite, with the machinery of the 1947 Act. The reason was that in the 1945 Parliament legislative speed had taken precedence over legislative efficiency.

After other Members had addressed the House, the amendment was negatived by 300 votes to 256—Government majority 44. The motion was agreed to.

## Cambridge District Stationmasters' Annual Luncheon

*Mr. John Elliot on railway problems and prospects*

The sixteenth annual luncheon of stationmasters in the Cambridge District was held at the Lion Hotel, Cambridge, on April 26.

Mr. J. W. Dedman, District Operating Superintendent, Cambridge, who presided, proposed the toast of British Railways, coupled with that of the guest of honour, Mr. John Elliot, Chairman of the Railway Executive. He referred to the achievements of Mr. Elliot in furthering good relations between the railways and the public and between railway management and men, and to the good work of Cambridge District stationmasters as evinced in the fine punctuality record of the District.

Mr. John Elliot, replying, stressed the importance of the human touch and of mutual confidence in railway staff and public relations. The process of welding together the components of an amalgamated railway system, and of engendering *esprit de corps* in the unified system was, he said, a long one. In the case of the L.M.S.R., even under as able a President as the late Lord Stamp, it had not been complete at the outbreak of war in 1939. In less than four years since nationalisation British Railways could not be expected to have achieved many of their aims, including unity; this might take fourteen years.

The criterion of their work, Mr. Elliot continued, must be the extent to which it answered public requirements. The railways, however, were severely handicapped.

#### Ban on Capital Expenditure

The reduction in capital expenditure ordered by the Government had put a temporary stop to many schemes for improvement and extensions. As soon as the expenditure was authorised, the Railway Executive would go all out on its electrification schemes in many parts of the country. They intended to electrify the former G.N.R. main line from Kings Cross possibly to Hitchin or even to Grantham. Mr. Elliot said that there might be electrification of the L.M.R. to Crewe and an increasing amount of diesel traction in that Region. Other electrification was planned in the Manchester, Liverpool, and Glasgow areas.

#### Steel Shortage

On the steel shortage combined with intensified rearmament Mr. Elliot said: "We shall not have the steel and so we shall have 2,000 aged coaches, shabby and

unfit for modern traffic, running about this summer." As a result of the international situation, the Executive could not build a single vehicle of its programme for 1952 this year, "perhaps next year, or the year after."

Railwaymen must be patient, he continued. As the result of State ownership, the Government was in the position of a board of directors of a railway company. Railway servants had enough to do performing their jobs, and should keep out of politics; they must, however, be prepared to bear some adverse criticism.

The railways, said Mr. Elliot, had revolutionised the economy of Britain. The Railway Age might be over, but the present was the Transport Age—the age of railways and other forms of transport in co-operation. Railways were indispensable, and would long remain so, for the long-distance transport of freight and the mass movement of passengers.

#### Railways Essential to National Economy

As to the suggestion that they were only of strategic value, railways were as essential in peace as in war. It was impossible for other forms of transport to move 3,000,000 passengers and 1,000,000 tons of freight every 24 hr.

The railways must decide policy questions after due examination. Mr. Elliot pointed out that the creation of a Dover-Dunkirk train ferry service was studied for three years under Sir Herbert Walker, the General Manager of the Southern Railway, before the decision to go ahead was made. The question of British Railways motive power—diesel, electric, or steam—might take long to decide.

Day-to-day questions, however, should be decided quickly. Mr. Elliot expressed his belief in decentralisation to the Regions of British Railways. The major economies achieved through unification since railway nationalisation, however, must not be thrown away, such as those resulting from the redistribution of work between the locomotive works. Railwaymen must work at their jobs, whatever reorganisation of transport might be planned.

He congratulated Cambridge District on its punctuality record.

Mr. F. W. Lummis, Stationmaster, Newmarket, proposing the toast of the visitors, in place of Mr. W. A. Cox, Stationmaster, Bishops Stortford, who was taken ill the previous day, mentioned the work of Mr.

Elliot in improving the spirit of the staff, and the progress made recently in education of railway staff.

Mr. C. K. Bird, Chief Regional Officer, Eastern Region, replying, said that the present situation, when railways were criticised and attacked, called for the toughness characteristic of the men of East Anglia. This was a testing time, and a challenge.

Others present from the Eastern Region included:

Messrs. E. W. Rostern, Operating Superintendent; A. R. Dunbar, Divisional Operating Superintendent (Eastern); W. E. Blakey, Assistant Commercial Superintendent; A. G. Croxall, District Commercial Superintendent, Peterborough; A. J. Johnson, District Commercial Superintendent, Cambridge; R. E. Lawler, District Commercial Superintendent, Ipswich; and the following officers from Cambridge: C. N. Morris, District Motive Power Superintendent; J. Rogers and G. Sutcliffe, retired District Operating Superintendents; M. D. Thompson, retired District Commercial Superintendent; A. H. Rees, retired District Motive Power Superintendent; C. V. Barrett, Assistant District Operating Superintendent; E. Hopkin, Assistant District Commercial Superintendent; A. H. Wright, retired Assistant District Operating Superintendent; and R. A. Taylor, Stationmaster.

## Sailing Tickets for Ireland

Steamer reservation tickets, formerly known as sailing tickets, will be required for passengers travelling to and from Ireland on certain dates during the peak period. The following are the sailings concerned:—

**Heysham-Belfast:** From Belfast, on Fridays, July 4 to September 5 inclusive; on Saturdays, July 5 and August 9; and on Thursday, July 10. From Heysham, every Friday and Saturday, July 4 to August 16 inclusive, on Thursday, July 23, and on Sunday, July 27.

**Stranraer-Larne:** From Larne on Friday and Saturday, August 1 and 2 only, and from Stranraer on Friday and Saturday, July 18 and 19 only.

**Holyhead-Dun Laoghaire:** From Holyhead, all sailings, Saturdays June 14, 21 and 28 and July 19, every day from July 24 to August 4 and from August 8 to August 11 inclusive, and Saturdays, August 16 and September 20. Morning boats only (3.25 a.m. and 8.15 a.m.) Saturdays, July 5 and 12, August 23 and 30, and September 6 and 13. From Dun Laoghaire, all sailings, Fridays, from August 1 to 29 inclusive. Saturdays, July 26 and August 30, Sunday,

August 10, and Monday, August 11. Morning boat only (8.40 a.m.) Saturday, July 25.

In addition to the ordinary sailings in the summer the following relief steamers will be provided: *Heysham-Belfast*: Mondays, July 14, 21 and 28, Thursdays, July 17, 24 and 31, Fridays, June 27 to September 12 inclusive. *Belfast-Heysham*: Fridays, July 4 and 11, Saturdays, June 28 to September 13 inclusive, Mondays, August 4 and 11, and Thursday, August 7. Sunday sailings in both directions from July 6 to August 24 inclusive.

On the Stranraer-Larne route the following additional sailings in both directions will be provided: *Stranraer-Larne*: Every weekday, June 20-September 6 inclusive. *Larne-Stranraer*: Every weekday, June 20-September 8 inclusive. (Train will leave Belfast at 8 a.m. to connect with morning steamer from Larne Harbour).

### Revised British Standard for Limits and Fits

After some years' work the British Standards Institution has prepared a revised draft of British Standard 164 (Limits and Fits for Engineering). The revision is based on the International Standards Organisation system of limits and fits used in all Continental and other metric-using countries. To ensure wide comment on the new draft before final publication as a British Standard is considered, members of the Technical Committee of the Institution explained the reasons for the adoption of the proposed system, and the principles used in preparing the draft, at a meeting held at the Institution's headquarters on April 24. The members included Mr. J. E. Baty, Chairman; Mr. J. Loxham, of Sigma Instrument Co. Ltd.; Mr. H. G. Conway, of British Messier Limited; and Mr. F. H. Rolt, of the National Physical Laboratory.

British Standard 164 was first issued in 1906 and revised in 1924. In recent years it was felt that it was not altogether adequate for modern engineering practice but although the outbreak of war in 1939 made it inadvisable to effect an important change, a revised edition was published in 1941 which, however, contained the same tolerance tables as the previous edition. After the war proposals were formulated for a complete revision and the work had been completed when factors arose which prompted a review of the whole question in the interests of devising a system of limits and fits for engineering which could be universally adopted throughout the inch-using countries, and this review has led to the publication of the present draft.

The International Standards Organisation system of limits and fits was issued in its present form in 1935. It is in widespread use on the Continent and has also been adopted by a few British organisations which use the metric system. The British Standards Institution therefore decided that the new British Standard should be based on the International Standards Association Bulletin 25, with the metric tolerance values converted to inches.

The system has been so designed that, within its limits of application, it is sufficiently comprehensive to cater for normal requirements of all types of engineering, from precision gauge manufacture to coarse quality work, and flexible enough to meet extraordinary requirements. It can be logically extended to cover greater size ranges than at present (0.04 in. to 19.686 in.).

There are 21 different types of fit (8 of clearance fit, 4 of transition fit, and 9 of interference fit) available in 16 different qualities of manufacture. Selected fits for particular applications can be listed in convenient form for drawing office use. Because of the wide selection of fits provided, almost exact equivalents can usually be given for fits in other systems. To assist designers the British Standards Institution is also preparing for publication a guide book giving recommended fits for particular applications.

### Method of Conversion

The primary objective of the Committee when deciding on the method of conversion was to arrive at a set of limits which would differ as little as possible from the exact equivalents of the I.S.A. metric values, but would not be rendered unrealistic by being specified to an unnecessarily high degree of accuracy. It was therefore agreed, first, that the tolerance values should be obtained by direct conversion into inches of the metric values and not by using the tolerance formula, and secondly, that no tolerance value should be specified to a higher degree of accuracy than the nearest 0.00005 in., and this only in the fine qualities. As a result, the inch and metric limits and tolerances are, for all practical purposes, interchangeable, and any fit specified by symbol only will represent the same limits of size whether inch or metric measure is used. The metric values of the diameter size ranges were converted into inches and rounded to the nearest 0.001 in. in the upwards direction.

For the convenience of those changing to the new system an appendix to the draft gives tables showing the approximate equivalence of I.S.O. fits to those of British Standard 164 (1924 revision), and the Newall systems. The number British Standard 164 has been retained for convenience during the drafting period, but in view of the fundamental nature of the revision, a new number will probably be allotted when the standard is published. Copies of the draft may be obtained from the British Standards Institution, 24, Victoria Street, London, S.W.1, price 5s., post free.

### Provincial Fare Changes

In consequence of the direction by the Minister of Transport to the B.T.C., the railway fare increases outside the London Area authorised by the Transport Tribunal will not take effect so long as the direction is in force, but the reductions which are provided for in the Tribunal Order took effect on May 1.

Ordinary single and return fares are reduced from about 2½d. a mile to 1½d. (third class). First class fares are 50 per cent. above third. Monthly return tickets are discontinued, but ordinary return tickets, available for three months, usually cost less than monthly returns. Distances used in the calculation of fares have been revised to relate to the route.

Workmen's and shift workmen's tickets continue to be issued as previous; the only exceptions are in a few cases where the new early morning return is less than the previous workmen's fare. Early morning returns (third class only) are issued even although workmen's tickets (at a lower scale than early morning returns) are available.

No season ticket rate has been increased, but season tickets expiring after May 1 will not be renewed for a longer period than three months.

### Parliamentary Notes

#### Bank Advances to Nationalised Industries

In reply to a question on bank advances to nationalised industries, Mr. J. A. Boyd-Carpenter (Financial Secretary to the Treasury) said that before approving temporary borrowing from the banks, the Treasury, in consultation with the Minister concerned, satisfied itself that the advances were needed to carry out the approved capital programmes and discharge their functions. Borrowings by the British Electricity Authority were about to be funded by a public stock issue. As regards the other industries, it was not possible to forecast what further advances would be necessary and it would not be in the public interest to disclose the intentions as to timing or method of re-financing existing advances.

### Questions in Parliament

#### Disused Railway Track

Mr. Gerald Nabarro (Kidderminster—C.) on April 21 asked the Minister of Supply what steps he was taking to collect scrap and steel from disused branch lines, particularly rails not capable of re-use as such.

Mr. Duncan Sandys: The Minister of Transport has asked the Railway Executive to hasten the dismantling of disused track and buildings so to increase the volume of ferrous scrap recovered.

#### B.T.C. New Buildings

Mr. Peter Roberts (Sheffield, Heeley—Nat. Lib.-Con.) on April 21 asked the Minister of Transport how much of the £697,000 spent on new buildings and alterations to offices for the British Transport Commission was authorised before November 1, 1951.

Mr. J. S. MacLay wrote in reply: The amount is £687,000.

### Staff & Labour Matters

#### Railwaymen's Wage Claim

A meeting between the three railway trade unions, the N.U.R., A.S.L.E.F., and T.S.S.A., was arranged for May 1, to discuss details of the new wage claim which is to be lodged with the Railway Executive, as was announced in last week's issue.

#### Pay Claim for Women Engineers

A claim has been submitted to the Engineering & Allied Employers' National Federation for a substantial increase in pay to meet the rising cost of living for women workers in the engineering industry.

Five unions are associated with the claim, namely, the Amalgamated Engineering Union, the Foundry Workers' Union, the Electrical Trades Union, the Transport & General Workers' Union, and the National Union of General & Municipal Workers. They have asked that the claim be discussed on the same day as the claim which has been already lodged for men in the industry.

ROAD HAULAGE ASSOCIATION.—The annual general meeting of the Road Haulage Association will be held at Caxton Hall, Westminster, S.W.1, on Wednesday, May 14. Meetings of the retiring National Council and the new National Council will be held at Caxton Hall on the same date.

## New Electric Locomotives for Spain

*First of order inspected at Vulcan Foundry*

Representatives of the Spanish Government and Spanish National Railways, other overseas railways, the Railway Executive, consulting engineers, and the technical press visited the Vulcan Foundry, Newton-le-Willows, on April 29 to inspect the first of sixty new Co-Co electric locomotives for Spain. The locomotives, of 3,600 h.p. and for the 5 ft. 6 in. gauge, are being supplied by the English Electric Co. Ltd.; the mechanical parts for 40 of them are being made at the Vulcan Foundry, and for the other 20 at the English Electric works at Preston.

At a luncheon before the inspection, Brigadier James Storar, Chairman of the Vulcan Foundry Limited, said how much his company appreciated the presence of representatives of so many governments, railways, and their consultants. Among them were the Spanish Director-General of Railways, the Chief and Deputy Chief Electrical Engineers of the Spanish National Railways and the Commercial Counsellor to the Spanish Embassy. He considered the agreement under which the Vulcan Foundry Limited and the English Electric Co. Ltd. had worked for some years was of the greatest benefit to their clients, enabling the combined knowledge and experience of the two companies to be placed at the disposal of customers.

Sir George H. Nelson, Chairman & Managing Director of the English Electric Co. Ltd., said the new locomotives were the most powerful yet built in this country. Great Britain and Spain had always been very good friends. He considered that the best way of establishing friendship between nations was by trade, and he thought that this contract to the value of over £4 million would further consolidate that friendship. His company had many years of happy association with Spain in various fields, such as hydro-electric schemes.

The present contract was the outcome of a visit to this country by the consulting engineers of the Spanish railways, who had seen the locomotives for the former San Paulo Railway under manufacture. He was sure the successors to that design would give equal satisfaction.

Mr. J. Tapia Cervantes, Deputy Chief Electrical Engineer, Spanish National Railways, said the management of the Spanish railways was entirely satisfied to see that the work was going ahead as had been hoped, and they were sure the locomotives would give entirely satisfactory service in Spain.

Mr. R. Morales, Commercial Counsellor, Spanish Embassy, said that the region in which the locomotives were to work was one of the most difficult places to build a railway in Spain. Coal from the Ponferrada basin had to be hauled over a range of mountains. Spain was an excellent market because of its important industrial development programme.

## Contracts & Tenders

The Crown Agents for the Colonies have placed a contract with the Gloucester Railway Carriage & Wagon Co. Ltd. for 30 wagon underframes and Gloucester bogies. The underframes and bogies are for 25-ton low-side 5-ft. 6-in. gauge wagons for the Ceylon Government Railway.

The Government of Pakistan has recently placed the following order with Groupe Français, Paris, for the North Western Railway:—

170 broad-gauge "OM" type low-side open wagons.

50 broad-gauge "OH" type high-side open wagons.

102 broad-gauge "O" type high-side open wagons.

A recent Reuter's report states that a conference on the electrification of the Queensland Government Railways Brisbane suburban system has decided to begin surveys so that tenders for the succeeding stages of the electrification work can be called by March, 1953. The tenders considered would be for rolling stock, supply and erection of overhead wiring, supply and erection of substation and control station equipment, and the

supply and installation of signalling equipment.

The Board of Trade Special Register Information Service has stated that the Government of Pakistan, Ministry of Communications (Railway Division), has issued a call for tenders for the supply of 24 metre-gauge "MAWD" type locomotive boilers for the Eastern Bengal Railway. Tenders should reach the Director General, Railways, Ministry of Communications, Railway Division, Government of Pakistan, Karachi, by 12 noon on June 6. They will be opened in the Office of the Director, Mechanical Engineering & Stores, Ministry of Communications, Railway Division, at 11 a.m. on June 7. A copy of the tender documents is available for inspection at the Board of Trade, Commercial Relations & Exports Department. Reference C.R.E./13401/52 should be quoted. Further copies of the tender documents and particular specifications can be obtained from the Office of the Director General, Railways, Ministry of Communications, Karachi, on payment of Rs.50 for each set.

A further report from Karachi states that the Government of Pakistan has issued a call for tenders for five metre-gauge "YB" oil-burning steam locomotives and tenders, and three metre-gauge "YD" oil-burning steam locomotive boilers, for the Eastern Bengal Railway.

Tenders should reach the Director General, Railways, Ministry of Communications, Railway Division, Government of Pakistan, Karachi, before 12 noon on June 2. They will be opened in the Office of the Director, Mechanical Engineering & Stores, Ministry of Communications, Karachi, at 11 a.m. on June 3. A copy of the tender documents is available for inspection at the Board of Trade, Commercial Relations & Exports Department. Reference CRE/14784/52 should be quoted. Further copies of the tender documents and particular specifications can be obtained from the Office of the Director General, Railways, Ministry of Communications, on payment of Rs.75 for the complete set. Copies of the contract drawings can be obtained by direct application to Hodges Bennet & Co. Ltd., Petty France, London, S.W.1, on payment of the cost of the drawings.

## New Signalbox at Three Bridges, Southern Region



A new signalbox at Three Bridges, with the largest mechanical locking frame on the Southern Region, was brought into use last weekend (see paragraph on page 502)



The United Kingdom Trade Commissioner at Johannesburg has notified the Board of Trade, Commercial Relations & Exports Department that the South African Railways have issued a call for tenders (No. C.4361) for overhead track equipment fittings. Tenders must reach the Chairman of the Tender Board before 9 a.m. on Thursday, May 15. A copy of the tender documents is available at the Board of Trade; reference CRE/15048/52 should be quoted. Further copies may be obtained from the Chief Stores Superintendent, Johannesburg, and copies of the drawings concerned may be purchased at that office, or any S.A.R. Stores Superintendent. The drawings may also be seen at the Office of the High Commissioner of the Union of South Africa, London.

## Notes and News

**Cayton Station (N.E.R.) to be Closed.**—Cayton Station, on the Filey-Scarborough section of the North Eastern Region, will be closed on May 5.

**Civil Engineers for New Zealand Railways.**—Applications are invited from qualified civil engineers for vacancies in the New Zealand Railways. See Official Notices on page 503.

**Draughtsman Required.**—Geometric Design Limited, 66, Victoria Street, S.W.1, has vacancy for a draughtsman experienced in design or detailing of railway carriages. See Official Notices on page 503.

**British and French Railways Staff Exchanges.**—British Railways have arranged an exchange training visit between four members of their traffic and technical staff and four corresponding officials of the French National Railways. For a period of six weeks, starting last week, they are studying the railway subjects in which they specialise in their own countries. The British representatives are Messrs. R. S. C. Pithouse, District Commercial Department, Swansea; D. Fenton, District Operating Department, Manchester (London Road); H. H. Barker, Mechanical & Electrical Engineering Department, Derby; and G. Aspinall, Civil Engineering Department, York. The French group consists of MM. Hasenknopf (Commercial), Gallet (Operating), Forray (Mechanical & Electrical Engineering), and Charbonnière (Civil Engineering). Similar exchanges took place in 1949 and 1950. The French party arrived in London on April 21. In the

accompanying illustration, showing the four British Railways officers who are taking part, discussing their tour with Mr. John Elliot, Chairman, Railway Executive, are: left to right: Messrs. G. Aspinall, H. H. Barker, John Elliot, D. Fenton. R. S. C. Pithouse.

**Institution of Electrical Engineers.**—The annual general meeting of the Institution of Electrical Engineers, Savoy Place, W.C.2, will be held at 5.30 p.m. on Thursday, May 15, for corporate Members and Associates only.

**Vacancy for Technical Sales Engineer.**—A technical sales engineer is required to exploit market for speed indication and recording of steam, diesel and electric locomotives, also for industrial plants. See Official Notices on page 503.

**Daily Dining Car Specials for B.I.F.**—Two special trains will be run by the London Midland Region each morning from Euston direct to Castle Bromwich for visitors to the Birmingham section of the British Industries Fair. A third class only train will leave at 8.37 a.m. and a first class only at 8.55 a.m.

**New Signal Box at Three Bridges, Southern Region.**—A new signal box was brought into use at Three Bridges, Southern Region, last weekend, replacing the former box built by the London Brighton & South Coast Railway in 1880. With 142 levers, the new box has the largest mechanical locking frame on the Southern Region. In addition to the signalman's floor, the new box contains a relay room, battery room, lineman's room and a staff mess room. Three crossovers which formerly were operated mechanically are now worked by six electric point machines. The relay room, 40 ft. long, houses 226 relays.

**L.M.R. Orchestral Society.**—On Friday, April 25, the London Midland Region Orchestral Society gave a concert in Friends House, Euston Road, London, N.W.1. The programme, consisting mainly of works by Tchaikowsky, included movements from the "Pathétique," "Le Lac des Cygnes" and "Eugene Onegin." Solos were performed by Miss Corinne Belden, who possesses a fine soprano voice and a genuine feeling for the music of Tchaikowsky; the velvet touch of Mr. Percival Garratt was particularly in evidence during the last two movements of Mozart's pianoforte concerto in C Minor. The orchestra, which

generally maintained a high level of musicianship was in places a trifle woolly, however, and there were times when the attack was not sharp enough. Watching Mr. John Grindley, whose love of music is almost tangible, one sensed that the orchestra was not always with him. Individual performances within the framework of the whole were good and the concert provided a most enjoyable evening.

**East African Transport Loan.**—Authority to raise new loans totalling £33,000,000 for railway and harbour developments in East Africa is given by a bill introduced by the East Africa High Commission and passed by the East Africa Central Legislative Assembly. Details of the loan and the work which it is intended to finance were given in our March 28 issue. The bill enables all or part of the amount to be obtained from the International Bank, with which negotiations are beginning. The Commissioner for Transport told the Assembly that borrowing from the Bank would be expensive. When this loan was raised it would mean that the total amount in the East African Railways & Harbours annual budget for interest and amortisation for all transport loans would be £6,000,000.

**Beckett, Laycock & Watkinson Limited.**—To mark its fortieth anniversary as a supplier of railway and road transport vehicle equipment of many kinds, the firm of Beckett, Laycock & Watkinson Limited gave a cocktail party at the Savoy Hotel, London, on April 24, when some 600 guests were received by Mr. J. E. Beckett, director. An oil painting of Mr. Beckett, previously presented to him by his co-directors, was exhibited.

**British Institute of Management.**—At the first Scottish conference of the British Institute of Management, was held at the Gleneagles Hotel, Perthshire, between April 25-27, the theme was "Management for Recovery." The object of the conference was to provide a balanced picture of the contribution which effective management could make to national recovery. The programme included a paper on "The Principles of Economic Manufacture," by Mr. B. A. C. Hills, Comptroller, S. Smith & Sons Limited, at which the Chairman was Mr. W. D. Lorimer, Managing Director, North British Locomotive Co. Ltd.; and "Management Accounting," by Mr. Ian Morrow, Director, Brush Electrical Engineering Co. Ltd., and Chairman of the B.I.M. Management Accounting Advisory Panel. Sir Charles Renold, Chairman, Renold & Coventry Chain Co. Ltd., Vice-President of B.I.M., was chairman of a session at which Sir Richard Lloyd-Roberts read a paper on "The Human Factor in Management."

**"Treasure Hunt."**—On April 24, 25 and 26 the L.M.R. (London) Dramatic Society presented the comedy "Treasure Hunt" at the Rudolf Steiner Theatre, London, N.W.1. The story concerns a family in the South of Ireland whose diminished fortunes compel them to accept paying guests. An eccentric aunt, given to sitting in a sedan chair in the drawing room and imagining she is travelling across the world, has hidden some priceless rubies in the establishment many years before, but cannot remember where. All the humours of the situation when a couple seeking relief from the austerities of post-war England arrive in this unusual household were excellently exploited by a competent



Mr. John Elliot with the British Railways representatives who are visiting France

## OFFICIAL NOTICES

## CIVIL ENGINEERS FOR NEW ZEALAND RAILWAYS

The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

**TECHNICAL SALES ENGINEER** to exploit market for Speed Indication and Recording of Steam, Diesel and Electric Locomotives; also for Industrial plants. Previous experience and live connection with Railway Engineers essential. Progressive post. Write stating previous experience and salary required to—Box R.G. 196 at 191, Gresham House, E.C.2.

**FOR SALE.** Hangar (all steel) 113 ft. clear span  $\times$  135 ft. long  $\times$  25 ft. clear height at eaves, rising to 35 ft. clear at apex. Doors each end (gable optional). Hangar (all steel) 80 ft. clear span  $\times$  144 ft. long  $\times$  22 ft. clear height at eaves, rising 32 ft. at apex. Doors one end. Steel building 80 ft. clear span  $\times$  144 ft. long  $\times$  22 ft. clear height at eaves. Large sliding doors in sides. Curved steel building 35 ft. span  $\times$  17 ft. 6 in. high at apex. Up to 600 ft. long (low price).—**BELLMAN HANGARS LTD.**, Terminal House, London, S.W.1.

**JUST PUBLISHED.**—Twenty-Five Years of the North Eastern Railway, 1898-1922. By R. Bell, C.B.E., Assistant General Manager, N.E.R. and L.N.E.R. Companies, 1922-1943. Full cloth. Cr. 8vo. 87 pages. 10s. 6d.—*The Railway Gazette*, 33, Tothill Street, London, S.W.1.

and spirited cast. Marjorie Groves as Aunt Anna Rose struck the right note of amiable address, conveying the idea that even if she had assisted her husband to fall out of the "Orient Express" on their honeymoon, it had been done without malice. Nora Chadwick and Reginald Barker, as the older generation at Ballyronney Castle, schemed amusingly to oust the paying guests forced upon them by the younger set, played by Robert Ayres and Doreen Morgan. As the unwelcome visitors themselves, Harold Sharpes, Margaret Kirby and Doris Hillebrand gave a neat portrayal of contrasted reactions to a household where valuable paintings lurked in cobwebby corners and boots were cleaned on Chippendale tables. The servants, played by Peggy Pidgeon, Pat McLaughlin and Mary Rogerson, succeeded admirably in giving life and conviction to the background against which the story is told.

**Railway Students' Association at Harwich.**—On April 26 a party of 50 members of the Railway Students' Association, London School of Economics & Political Science, visited Parkeston Quay and Harwich. Travelling to Parkeston Quay West on the "Day Continental" from Liverpool Street, the party watched the departure of the morning service to the Hook of Holland, and then inspected the British Railways vessel, *Duke of York*, which was alongside in readiness for the night sailing. During the morning the "Scandinavian" express from Liverpool Street arrived, and members watched the sailing of the connecting service on the 16-hr. crossing to Esbjerg. After lunch at the Great Eastern Hotel, Parkeston Quay, the journey was continued by rail to Harwich Town Station to see the loading of wagons on to the train ferry for Zeebrugge. One of the Eastern Region boats from the Harwich-Felixstowe service was provided to take the party back to Parkeston Quay for tea, and before returning there made a cruise in the estuary and for a short distance up the River Stour, providing a comprehensive view of the whole extent of the quays and shipping. After tea the party's special

**APPLICATIONS** are invited from suitably qualified Civil Engineers for vacancies in the New Zealand Railways. Salaries will be within the scale £575 N.Z.—£1,000 N.Z. per annum according to qualifications and experience. Applicants must hold a University degree in Engineering recognised by the Institute of Civil Engineers. Associate Membership of the Institute of Civil Engineers would also be an advantage. Further details and application forms may be obtained from—**THE HIGH COMMISSIONER FOR NEW ZEALAND**, 415 Strand, London, W.C.2., mentioning this paper and quoting reference number A.3/36/20. Applications must reach this office by Saturday June 14, 1952.

**WE BUY** used or unserviceable Steel Files at good prices in lots of 2 cwt. or more.—**THOS. W. WARD LTD.**, Reusable Steel Dept., Albion Works, Sheffield.

**INSPECTING** Engineer established on Continent many years now able to extend scope for inspection of locomotives rolling stock constructional and permanent way material in Western Europe.—**Box 474, The Railway Gazette**, 33, Tothill Street, London, S.W.1.

**THE GAS-TURBINE LOCOMOTIVE.** A technical description of the gas-turbine recently constructed by the Metropolitan-Vickers Electrical Co. Ltd. for the Western Region, British Railways. Subjects dealt with include body construction, bogies, traction motors, prime mover, generators and auxiliary equipment. A folding plate drawing of the locomotive is included together with illustrations and diagrams. Reprinted from *The Railway Gazette*, February 1, 1952. Price 5s. Post free 5s. 2d.—*The Railway Gazette*, 33, Tothill Street, London, S.W.1.

coach was worked forward from Parkeston Quay to Parkeston Quay West for attachment to the up "Day Continental," by which the return journey was made to London. Mr. J. W. Duff, representing Captain R. Davis, Marine Superintendent, Parkeston, accompanied the party throughout the visit, and provided much information on the railway and marine working at the port and the connecting services on the Continent.

**Marylebone Goods Station now a Parcels Depot.**—Marylebone Goods Station, one of the largest in London, is now operating as a parcels sorting depot, as part of a plan to simplify and expedite the handling and transfer of parcels traffic via London. The purpose of the scheme is to remove some of the parcels traffic from the passenger stations at Euston, St. Pancras, and Kings Cross, thus freeing more space for passenger traffic; speed up transit of parcels between the south and north of England; and provide greater protection. Parcels traffic formerly passing by cross-London rail routes between the southern and northern termini is now being carried by road and concentrated at Marylebone Goods Station which is also handling parcels forwarded from some London receiving offices for destinations in the north. Parcels trains are being run to and from Marylebone Goods Station to cater for this traffic. The present motor vans which convey parcels between the London termini are to be replaced by mechanical horse units with detachable trailers. Coal traffic and goods for certain tenancies are still handled at Marylebone, but all other goods class traffics are being diverted to other London depots.

**Repair of Former Privately-owned Wagons.**—The Railway Executive is considering a new scheme for repair of privately-owned wagons. In September, 1951, the Executive notified the Wagon Repairing Association, which represented the private repair firms at present engaged on this work, that it would take over all outstation repairs from February 1; this notice subsequently was withdrawn, the Association conceding a reduction of 2½

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per cent. in prices effective from February 1, 1952, and agreeing to a rationalisation of outstations (additional to that of 1942) so as to preclude duplication. Mr. F. T. Harrison, Chairman of the Association, emphasised in a letter to *The Financial Times* of April 24 that the Railway Executive notice referred only to outstations where light running repairs are effected, and not to works.

**Beyer, Peacock & Co. Ltd.**—The report of the directors of Beyer, Peacock & Co. Ltd., for the year ended December 31, 1951, shows a consolidated profit of £504,738, which, after deduction for tax, leaves a combined net profit of £238,065, compared with £195,441 for the previous year. After deduction of profits retained by subsidiaries, £64,701, a net profit remains of £173,364 (£160,512). The addition of £49,393 brought forward from 1950, makes an available total of £222,757. The amounts paid as preference dividends (July, 1951, and January, 1952) and as interim ordinary dividend (February, 1952) total £21,437. The directors recommend a final ordinary dividend of 3½ per cent. and bonus of 2½ per cent., which less tax total £19,162. From the balance of £182,158, the sum of £75,000 is transferred to general reserve, leaving £107,158 to be carried forward.

**Association of British Chambers of Commerce: Protest on Fares.**—In a memorandum to the Central Transport Consultative Committee, the Association of British Chambers of Commerce describes the withdrawal of some railway travel facilities by the B.T.C. as "a misuse of monopolistic power, which disregards the views and wishes of its principal customers." The Consultative Committee is asked to present the Association's case to the Minister of Transport for the retention of concessions such as commercial travellers' tickets, traders' season tickets, and a discount for bulk travel arrangements. The Association denies that such arrangements have been subsidised by other travellers. The Commission, it is stated, must lose revenue as a result of flouting the goodwill of its

principal customers in this way, and such ill-conceived measures militate against the much-needed attraction of a greater volume of railway passenger traffic.

**Road Haulage Rates.**—Major-General G. N. Russell, Chairman of the Road Haulage Executive, said recently that it had been decided for the present to make no change in haulage rates and to examine the position from week to week. The incidence of traffic would have to be watched and economies made where possible. Then, in the long term, the Executive could go forward to the traders and say that as the spiral had not shown much sign of decreasing some adjustment would have to take place. The Executive's aim was to keep the position as stable as possible. Mr. C. E. Jordan, Chairman of Birmingham Chamber of Commerce Transport Committee, has pointed out that the effect of the 7½d. a gallon increase in tax on petrol and heavy oil would cost the Road Haulage Executive £2,500,000 in a full year, but in 1951 "we have reason to believe that the Executive did pretty well."

**Soviet Offer to Extend Persian Railway.**—An agency message from Teheran reports that Persia is considering an offer by the Soviet Union to extend the Teheran-Mianeh line to the Soviet border. The offer is said to have been made to Persian delegates who attended the recent Moscow economic conference and to be in return for Persian oil. In our October 20 & 27, 1950, issue we reported that the British steel industry had secured a £3,000,000 order to supply Persia with 100,000 tons of rails, sleepers and fishplates for railway extensions, including that of the line from Teheran-Mianeh line towards the Soviet border. As reported in our September 21, 1951, issue, the British Foreign Office announced on September 14 that H.M. Government had requisitioned 3,000 tons of track equipment *en route* for Persia, and that it would be returned to Great Britain.

### Forthcoming Meetings

- May 3 (Sat.).—Permanent Way Institution. Visit of York Section members to London.
- May 3 (Sat.).—Permanent Way Institution, Manchester & Liverpool Section, joint meeting with the Irish and Notts. & Derby Sections, in Dublin.
- May 3 (Sat.) to May 11 (Sun.).—British Railways, Southern Region, Lecture & Debating Society. Belgian Tour.
- May 8 (Thu.).—Engineers' Guild, Metropolitan Branch, at Caxton Hall, Westminster, from 6 to 8 p.m. "The Development of an Engineer" by Mr. H. J. B. Harding.
- May 8 (Thu.).—Institution of Electrical Engineers, Savoy Place, W.C.2, at 5.30 p.m. "The Use of Electricity in a Modern Iron & Steel Works," by Mr. W. F. Cartwright.
- May 13 (Tue.).—Institution of Civil Engineers, Great George Street, S.W.1, at 5.30 p.m. "Factors Involved in the Renewal of Underline and Overline Bridges, and Their Influence on Design," by Mr. A. N. Butland, Assistant Civil Engineer, North Eastern Region.
- May 13 (Tue.).—Road Haulage Association. Annual Luncheon at Grosvenor House, Park Lane, W.1, at 12.30 for 1 p.m.

## Railway Stock Market

After an easier start to the week when markets were influenced by the small discount at which the new British Electricity stock began dealings, a firmer tendency developed. Sentiment was affected by talk of new issues, which it is thought would result in stockholders selling part of their existing holdings with a view to taking up new shares offered on attractive terms. The market believes that besides issues by industrial companies further colonial issues may appear before long, and there is a possibility of fresh offers by nationalised industries, another issue of Gas stock in due course being the general expectation.

Industrial shares have held the greater part of last week's gains which followed the good impression created by financial results showing record earnings for some leading companies, although this has been reflected to only a modest extent in net profits because of the tax burden. In some cases there have been small dividend increases which seem to indicate confidence in the future. It is unlikely these increases would have been made without reasonable prospects of maintaining them, despite the still larger proportion of profits which will be taken by tax because of E.P.L.

There was only moderate interest in foreign rails, with some firm features. Manila debentures scored further good rises compared with a week ago, though best levels were not fully held. The "A" debentures were 79 and the "B" 68, while speculative interest in the ordinary shares revived with dealings around 2s. 9d. and the preference rallied to 9s. 6d. Sentiment has been helped by the view that the Manila Railroad Company is unlikely to receive help from U.S.A. until there is an equitable scheme for dealing with arrears on the railroad bonds, which are virtually the only asset of the company. Incidentally, the preference shares of the Manila & General Investment Trust have strengthened to 7s. 3d. in sympathy with the securities of the Manila Railway Company.

A further improvement in San Paulo to 14s. was helped by the Anglo-Brazilian agreement on blocked sterling balances. Dorada Railway stock came into demand, and with buyers finding it is small supply in the market, the price rose sharply to 66.

Antofagasta ordinary and preference have been steadier at 14 and 65 respectively. Brazil Rail bonds were 5½. United of Havana stocks have been less active

with the 5 per cent. debentures at 17. Taltal shares were 17s. 3d. and Nitrate Rails 23s. 6d.

Leopoldina ordinary was again 11½ and the preference 29, the market still taking the view that total pay-outs are likely to be in excess of current market prices. Leopoldina Terminal debentures held their rise to 21. the ordinary shares were again around 9d.

Canadian Pacifics were less active around \$66½, with the 4 per cent. preference stock and debentures at 65 and 80½ respectively.

Chilian Northern 5 per cent. first debentures marked up to 33½, and Costa Rica first debentures at 45. International Railways of Central America 5 per cent. preferred changed hands at \$87½.

White Pass Yukon 4½ per cent. debentures transferred at 26½ and the 5 per cent. debentures around 32. Quebec Central ¾ per cent. debentures marked 89.

Among road transport shares, Southdown were 75s., Lancashire Transport 40s. and B.E.T. deferred stock at £405 lost part of its recent advance.

Engineering and kindred shares have been fairly steady, with Guest Keen helped by market hopes of a moderate increase in the dividend. Babcock & Wilcox at 66s. 6d. were also firm on talk of higher dividend possibilities. Vickers at 45s. 3d. and Cammell Laird 5s. shares at 11s. 3d. have been fairly steady, though buyers seem to await the annual meetings for news whether it is intended to buy back the English Steel assets if de-nationalisation offers this opportunity.

Among shares of locomotive builders and engineers, Beyer Peacock were 29s. 6d., Birmingham Carriage 32s. 9d., and Hurst Nelson improved to 49s. Vulcan Foundry were 23s. 1½d., North British Locomotive 15s. 4½d., Gloucester Wagon 11s. 3d., Wagon Repairs 11s. 6d. and Charles Roberts 21s.

**DISMANTLING THE SKYLON.**—George Cohen Sons & Co. Ltd., which is already dismantling the Dome of Discovery and ten other structures at the Festival of Britain site in London, is also to dismantle the Skylon. It will yield about 30 tons of metals. The dismantling will be carried out piecemeal as the structure cannot be felled. The work will take about six weeks.

Traffic Table of Overseas and Foreign Railways

Railway	Miles open	Week ended	Traffics for week		No. of week	Aggregate traffics to date				
			Total this year	Inc. or dec. compared with 1949/50		Total	Increase or decrease			
						1950/51				
Canada South & Cen. America	Antofagasta ...	811	18.4.52	£ 107,550	—	£ 19,810	16	£ 2,436,630	+	£ 814,970
	Costa Rica ...	281	Mar., 1952	c1,291,442	+	c828,700	39	c11,423,709	+	c2,585,228
	Dorada ...	70	Mar., 1952	32,729	—	1,506	13	102,429	—	5,679
	Inter. Ctl. Amer. ...	794	Feb., 1952	\$1,184,770	+	\$48,689	9	\$2,500,507	—	\$48,296
	Paraguay Cent. ...	274	28.12.51	G289,547	+	G102,688	26	G8,823,911	+	G3,556,978
	Peru Corp. ...	1,050	Mar., 1952	\$8,659,000	+	\$756,000	39	\$74,638,000	+	\$5,967,000
	" (Bolivian Section)	66	Mar., 1952	Bs.19,081,000	+	Bs.4,871,000	39	Bs.145,347,000	+	Bs.34,880,000
	Salvador ...	100	Feb., 1952	¢170,000	—	¢74,000	35	¢1,382,000	—	¢55,000
	Taltal ...	147	Mar., 1952	\$2,436,000	+	\$345,000	39	\$19,893,000	+	\$5,205,000
	Canada	Canadian National†	23,473	Mar., 1952	19,412,000	+	1,858,000	13	53,914,000	+
Canadian Pacific†		17,037	Feb., 1952	11,775,000	+	1,457,000	9	23,309,000	+	2,475,000
Various	Barsi Light* ...	167	Feb., 1952	36,960	+	3,945	48	369,540	+	50,557
	Gold Coast ...	536	Feb., 1952	297,888	+	19,649	47	3,152,908	+	299,560
	Mid. of W. Australia ...	277	Feb., 1952	54,399	+	15,228	35	470,357	+	153,973
	South Africa ...	13,398	29.3.52	2,011,418	+	319,021	52	99,762,479	+	9,924,607
	Victoria ...	4,744	Dec., 1951	1,908,931	+	609,316	26	—	—	—

\* Receipts are calculated at 1s. 6d. to the rupee

† Calculated at 83 to £1